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OSTEOARTHRITIS AN AYURVEDIC APPROACH

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Declaration

The Declaration of the author for publication of Research Paper in The Indian Journal of Research Anvikshiki ISSN 0973-9777 Bi-monthly International Journal of all Research: I, *Dheeraj Mohan* the author of the research paper entitled OSTEOARTHRITIS AN AYURVEDIC APPROACH declare that , I take the responsibility of the content and material of my paper as I myself have written it and also have read the manuscript of my paper carefully. Also, I hereby give my consent to publish my paper in Anvikshiki journal , This Research paper is my original work and no part of it or it's similar version is Published or has been sent for Publication anywhere else. I authorise the Editorial Board of the Journal to modify and edit the manuscript. I also give my consent to the Editor of Anvikshiki Journal to own the copyright of my Research Paper.

Abstract

Osteoarthritis (OA) is a disease of old.Younger people sometimes gets osteoarthritis; primarily from joint injuries. It is one of the most common musculoskeletal disorders leading to the disability in elderly. The disease affects 33% of individuals over the age of 65 yrs. The rapid increase in the percentage of people older than 55 yrs of age, in Western countries, OA is becoming a major public health problem, affecting approximately 40 million people. Being a degenerative disease it mostly affects cartilage. Cartilage is the slippery tissue that covers the ends of bones in a joint. Healthy cartilage allows bones to glide over each other. It also helps in absorbing the shock during the movement. The management of OA primarily comprise pharmacological therapy and various non-pharmacological interventions. Total joint replacement of the knee is recommended for patients with chronic pain and disability despite of no relief after the maximal medical therapy. It is not possible for everyone to go for knee replacement, and long term use of NSAIDS, COX-2 inhibitors is also not safe. Alternative therapy can play a better role in its management. In Ayurveda We can correlate it with sandhi gata vata. And can get a very good result by the Ayurvedic measures and yoga.

Introduction

The word 'osteoarthritis' originated from Latin word "osteo", meaning " the bone", "arthro", meaning "joint", and "itis", means it is a inflammation of bone, although inflammation is not a conspicuous feature for osteoarthritis. This feature is present in rheumatoid arthritis or in autoimmune types of arthritis. Some clinicians refer to this condition as osteoarthrosis due to the absence of inflammatory response. OA is the most common form of arthritis[1]. It is among the most prevalent and disabling

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chronic conditions in the United States[2]. The prevalence increases with age, and by the age of 65[3] .Approximately 80 percent of the US population is affected by OA in any joint. Each year approx. 4, 35,000 Americans undergo surgery to replace a hip or knee damaged by severe arthritis. It is increasing in recent decades due to aging of the population and the increasing prevalence of obesity. Nearly 70 percent of people over the age of 70 have X-ray evidence of the disease, but only half of these people ever develop symptoms. Women are generally affected at a younger age than men. Additional factors that increase the risk of developing OA of the knee is genetical factor. Other risk factors includes joint hyper mobility, specific occupations, sports stress, peripheral neuropathy, injury to the joint, history of immobilisation, repetitive knee bending or heavy weight lifting. Knee pain is one of the most common musculoskeletal Complaints that bring people to their physician. With today's active society, the number of knee problems is increasing. Knee pain has a wide variety of causes and treatments. Weight reduction, regular exercise, topical capsaicin cream Transcutaneous electrical nerve stimulation (TENS),Non-steroidal anti-inflammatory drugs (NSAIDS),COX-2 inhibitors, Corticosteroid injections injected into the joint. Arthroscopic wash out, Removal of loose bodies,Upper tibial osteotomy,Excision of patella orthroplasty and orthrodesis,are opted for the treatment[4],But the long term use of these drugs are not safe, and the surgery is costly too and also has its own complications.

Classification;

Osteoarthritis can be classified into either primary or secondary.

Causes; Caused by the degeneration of the articular cartilage of uncertain etiologybut nearly some factor is present that has caused the joint to wear out soonar then usual.Obesity is the commonest factor,for some reason it seems to impose a harmful stress upon the knee.[5]

Primary OA; Is the type where there is no pre existing abnormality or damage (Incongruity) as a cause of progressive degeneration[6]The pathophysiology of osteoarthritis involves a combination of mechanical, cellular, and biochemical processes. Cartilage is composed of water, collagen, and proteoglycans. As the age advances, the water content of the cartilage decreases as a result of a reduced proteoglycan content, thus causing the cartilage to be less resilient. Without the protective effects of the proteoglycans,the collagen fibres of the cartilage can become susceptible to degradation.

Secondary OA; Where there is a pre-existing pathology or damage which is responsible for prograssive degeneration[7] Congenital or developmental disorders of joints limb length discrepancy, Slipped epiphysis, Epiphyseal dysplasia, Malalignent hyper-laxity, Marfan's syndrome rheumatoid arthritis, SLE, Traumatic: injury to joints or ligaments, postsurgical, septic arthritis, haemochromatosis and Wilson's disease, gout, Ochronosis (Alkaptonuria) ,diabetes, acromegaly, arthopathy[8].

Old age; Sex steroids decreases which leads increase bone resorption. Bone mass decreases due to demineralization, Deposition of pyrophosphate may cause severe degenerative changes in the joint.

Obesity; Obesity is important risk factor for the Osteoarthritis. During walking3-5 times of body weight is transferred across the knee joint.

Psychological Stress ; The role of mental factors in production as well as aggravation of the disease O.A. Emotions, especially fear, anxiety and grief of unusual severity and duration are important in pathogenesis and persistence of systemic Osteoarthritis.

Clinical Features

Pain is the cheif symptom,make worse with use,with patelofemoral involvement,pain is worse on stair,as the disease progracess exercise tolerance diminishes,pain become reliant on walking.[9]

- Stiffness lasting less than 30 minutes
- Restricted movements of the joint
- Disability

Heberden,s node &Bouchard's node- These are the nodular formation occurring in DIP and PIP joints respectively in osteoarthritis.[10]

Diagnosis

Diagnosis is made on the basis of history and clinical examination. X-rays may confirm the diagnosis. In osteoarthritis of the knee, Anteroposterior and lateral radiographs in standing position is done. It allows an adequate estimation of the medial and lateral joint spaces.

Earliar sign-Spiking of the joint margin especially of patella and tibia[11]

4 key of radiographic feature—

Joint space narrowing,subchondrial sclerosis,osteophytes and sub chondrial cyst.[12]

Management

The principle of managing OA is reduction of pain, stiffness, and maintenance or improvement of function, retarding the disease's progression of joint damage and improvement of quality of life. There are three treatment modalities: non-pharmacological, pharmacological, and surgical. Weight reduction is quite effective and recommended for overweight or obese patients.

Uses of ice fomentation; Cold packs decreases swelling. Hot packs have no beneficial effect on oedema.

Topical creams; Topical creams are used as adjuvant therapy or even as a substitute for oral medications for OA pain.

Salicylates: are the main ingredients in topical analgesics. Creams which contain salicylates offer pain relief and reduce joint inflammation.

Glucosamine: Glucosamine and chondroitin are often termed "complementary agents", "disease-modifying agents", or "disease-modifying osteoarthritis drugs"(DMOADs).

Diacerein: An oral interleukin-1a inhibitor is slow-acting, but persistent, symptomatic relief in patients with osteoarthritis.

Injection of glucocorticoids: It leads to short-term pain relief that may last between a few weeks and a few months. Two or three intra-articular steroid injections of 40 mg of triamcinolone acetonide are usually required. The possible long-term effects and the unpredictable duration are controversial.

Surgery: Reposition bones, Arthrodesis, Arthroplasty, High tibial osteotomy(HTO) Correction osteotomy are opted for the treatment.

Ayurvedic Aspect of Disease.....

In ayurveda we can correlate osteoarthritis with sandhigata vata.Which is described by various ayurvedic text. Acharya Charaka has described the disease,Sandhigatavata under Vatavyadhi Chikitsa. He has mentioned it as Sandhigata Anila. There, he has mentioned its symptoms but not thetreatment. Acharya Sushruta has described the disease Sandhigatavata under Vatavyadhi chapter. He has given its symptoms and the line of treatment (Su. Ni. 19) Acharya Vagbhatta has said Vatavyadhis as a "Maharoga". From the period of Charaka onwards, the disease Sandhigatavata has identified as a separate clinical entity.

As Sandhigatavata is a Vatavyadhi, it mainly occurs due to Prakopa of Vata and so it can be classified in three types as below....

1. Dhatukshyajanya
2. Vataprakopaka Nidana Sevanajanya
3. Avaranjanya

Vata comprises of properties like Ruksha, Laghu, Khara, Vishada, Sukshma. These are exactly opposite to the qualities of Sleshaka Kapha present in Sandhi and Majja Dhatu situated in Asthi. When provoked Vata gets localized in Sandhi, it over powers and undoes all qualities of Kapha and Majja which lead to Sandhigatavata.

Prodromal Symptom

"Avyaktam Lakshanam Taishaam Purvarupam Iti Smritaam" (Ch.Ch.28/19)

It means that vata vyaadhi has no prodromal symptom.

Symptom

Vatapurnadrutisparsa sopha Sandhigateanile !/ Prasaranankuchanayo pravtiticha savedana !! (Ch. ch.28/37)

*Sandhishula :*Shula is the chief symptom of Prakupita Vata. It is clear that without Vata Shula does not occur.

Sandhishotha : Dosha Sanchaya in specific site is the main causative factor for Sotha. In Sandhigatavata, Prakupita Vata gets lodged in Sandhi where Sroto riktata already exists. So there is wide scope of Vata to get accumulated there resulting in Sotha. Here Vatapurna Druti Sparsha type of Sotha told by Charaka.

Akunchan Prasaranayoh Vedana

Acharya Charaka has shown this symptom. Sandhi are made to perform the function of Akunchana and Prasarana. When Prakupita Vata gets located in Sandhi, it hampers the normal function of Sandhi which results in vedana during Akunchana and Prasarana.

Sandhisphutana : This symptom is not mentioned in our classics directly. In modern medicine, it is mentioned clearly as crepitation .

Probable Samprapti: Vata prakopaka aahar vihar and vriddhawastha (old age) are main initiating factors.—increase in vata lead to the depletion of tissue and decrease in kapha dosha. Sleshaka kapha that is found between the joints decrease in their amount, and creates depletion in synovial fluid, which is the initial stage of osteoarthritis. The vitiated Vata causes the Asthi Ksaya i.e. degeneration of the bones, which is the main event found in the pathogenesis of osteoarthritis. Due to the degeneration of fluid, the space between two adjacent vertebrae is reduced, which ultimately causes the shortening of joint space.

Samprapti Ghataka

- *Nidana :* Vata Prakopaka Nidan

- *Dosha :* Vyanavayu, Shleshaka Kapha
- *Dushya :* Asthi, Majja.
- *Srotas :* Asthivaha, Majjavaha
- *Srotodusti :* Sanga
- *Agni :* Mandagni
- *Roga Marga :* Madhyam
- *Udbhavasthana :* Pakvashaya
- *Vyaktisthana :* Asthi – Sandhi

Prognosis

Sandhigatavata is one of the Vatavyadhi described in all Samhita and Sangraha Grantha. Acharya Vagbhatta and Sushruta have considered Vatavyadhi as Mahagada. It is so called due to the fact that the treatment is time consuming and prognosis is uncertain. Further Dhatukshya is the chief cause of Vatavyadhi. Dhatukshya is difficult to treat as said by Acharya Vagbhatta.

Management

Importance of snehana and svedana are mentioned in Ayurvedic texts, as with the help of these procedures the stiffness, pain of the joints gets relieved.

- General treatment of Vatavyadhi can be adopted, keeping a close watch on its etiology, common treatment like Snehana, Svedana, Mridu Samshodhana, Basti and Vatahara Aushadha, Ahara and Vihara may also be applicable in cervical osteoarthrits. As well as yoga may also play a better role in the management of osteoarthritis.

Snehana (External)

External snehana may be given in the form of jaanu vasti, by using mahanaarayana oil, murrivena oil, prassarni tail, mahamasa tail etc. Sneha has Mrudu, Guru properties which are just opposite to those of Vata so it alleviates Vata. After pouring the oil within the boundaries made over the cervical region. Infra red has a deep penetration power. Local heat will increase the circulation by vasodilatation in particular area and thus providing better nourishment and causes relaxation of muscle and tendon. It reduces the spasticity and rigidity of joint and relieve the pain.

Knee Cap Fixation

After snehana with oil knee cap fixation should done in which knee is fixed by using a long bandage to give the support to the knee. After 10 days traction is applied and traction gives a very good result in these cases.

Traction

Application of Mechanical Traction may give relif because of release of abnormal pressure on nociceptive receptor systems. Effects of Intermittent Traction included increased vascular and lymphatic flow (suction aspiration effect) which tends to reduce stasis, oedema and coagulates in chronic

congestions. Traction stimulates proprioceptive reflexes and helps to tone muscles, which tend to reduce fatigue and restore elasticity and resiliency[13].

Internal Sneha

Different type of the ghrita processed in vataghna dravya may be use for abhyaantar snehana. Ghrita possesses butyric acid which is most beneficial short chain fatty acid that the body need. Recent advancements shows that it reduce the inflammation. Ghrita also contain vitamin A. Carotenoid has a power of eleminating free radicals from the body, thus help in delaying the degenerative process. Guggulutikta ghrita, panchatikta ghrita can be use along with saindhav salt for better result.

Swedana(medicated Fomentation)

Ekanga or sarvanga sweda in with decoction of nirgundi, bala ,and dashmoola may be helpful.

Patra pind sweda by using the leaf of nirgundi ,dhatura and Eranda may give better result.

Upnaha: Upnaha or poultice with grihadhumaadi churna may be useful because of the local thermal effect.

Vasti: Panchtikta kshira vasti may be given.

Medicinal use

Churna; Sunthi,Eranda,Nirgundi,Aswagandha,Chopchini powder may be used as a single drug.

Qwatha; Maharasnadi, rasnadi and dasmoola quatha eranda moola qwatha may be used

Vatti; Mahayograja guggula,yograj guggul,Panchtikta ghrita guggulu,and lakshadi guggulu has a very good results.

Yoga

The following yogic practices are beneficial in OA; however, these should be performed only under the guidance of qualified Yoga therapist. Makarasana, Pavanamuktasana, Dhanurasana, Vakrasana, Bhujangasan Utkatsana etc.

Conclusion

With everything mentioned above we can say that it is this particular modality of treatment which goes with treating the cause rather than treating the symptoms. Also by prescribing the steroids therapy at very early or any stage of treatment we ourselves bring about our patient towards the bad prognosis. Rather than going with the pain relieving management by analgesics Ayurveda gives a very broad aspect of panchakarma and yoga, which should be widely taken into consideration, for bringing up a healthy nation.

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ROLE OF UTERINE ABNORMALITIES IN SUBFERTILITY AND OUTCOMES FOLLOWING THEIR TREATMENT

Dr. Shalini Bali*

Declaration

The Declaration of the author for publication of Research Paper in The Indian Journal of Research Anvikshiki ISSN 0973-9777 Bi-monthly International Journal of all Research: I, *Shalini Bali* the author of the research paper entitled ROLE OF UTERINE ABNORMALITIES IN SUBFERTILITY AND OUTCOMES FOLLOWING THEIR TREATMENT declare that , I take the responsibility of the content and material of my paper as I myself have written it and also have read the manuscript of my paper carefully. Also, I hereby give my consent to publish my paper in Anvikshiki journal , This Research paper is my original work and no part of it or it's similar version is Published or has been sent for Publication anywhere else. I authorise the Editorial Board of the Journal to modify and edit the manuscript. I also give my consent to the Editor of Anvikshiki Journal to own the copyright of my Research Paper.

Introduction

Uterine abnormalities have been found in 10% to 15% of women seeking treatment for fertility problems. These abnormalities include fibroids, endometrial polyps, congenital uterine abnormalities and intra uterine adhesions. A study reported intra uterine pathology in 38% of women undergoing IVF. 32% of them were endometrial polyps, 3% submucous myomas and 3% uterine adhesions. (Hinckley et al 2004). There is however a large variation in prevalence as reported in different studies, the most recent being the TROPHY study which showed intra uterine abnormalities in 11% of women with recurrent IVF failures.

These abnormalities can not only damage the integrity of the cavity but also compromise vascularity and endometrial growth and interfere with conception and impair embryo implantation.

The aim of this work is to present a review of literature regarding the association of uterine abnormalities with delay or failure of spontaneous conception and also their impact on outcomes of assisted conception techniques.

The various aspects that have been studied include the different diagnostic modalities, mechanism of causation of subfertility in each group of abnormalities, the evidence supporting their association with subfertility and outcomes following their treatment with respect to spontaneous conception and results of assisted reproduction technology.

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Diagnostic Modalities For Uterine Cavity Abnormalities

Hysterosalpingography; HSG is a simple radiographic procedure that not only provides information about the patency of the tubes but also evaluates the uterine cavity for abnormalities associated with Mullerian dysgenesis, intrauterine adhesions, submucous myomas and endometrial polyps. These abnormalities are shown as filling defects or uterine wall irregularities.

Approximately 10–35% of women undergoing fertility investigations, who have a normal cavity at HSG, have been reported to have abnormal hysteroscopic findings. Cunha et al 2001 compared results of hysteroscopy and HSG in infertile patients before IUI or IVF-ET. They found HSG to have a specificity of only 41.4% with a positive predictive value of 47% and negative predictive value of 70.6%. More recently Taskin et al, 2011 reported a sensitivity of 21.6% and false negative rate of 78.4%, with agreement between the two procedures of only 68.9%.

False-negative findings can result from an excessive amount of contrast media in the uterus obliterating shadows caused by small endometrial lesions. The reasons for false positive findings could be the presence of air bubbles, mucus or menstrual debris that could mimic filling defects. HSG does not provide information about trophic, inflammatory and infectious lesions that may be responsible for poor reproductive outcome in nearly 25% of subfertile women. Pain and discomfort during the procedure and the risk of hypersensitivity reaction to contrast medium are other limitations of this procedure.

Transvaginal Sonography; Transvaginal sonography (TVS) is an integral part of infertility investigations. It has been used as a screening test for the assessment of uterine cavity as it allows assessment of the endometrial lining and cavity. It also allows examination of the ovaries to diagnose any ovarian cyst or polycystic ovaries. It is used for follicular monitoring and adds valuable information required prior to IVF. It is very well tolerated and is non-invasive.

TVS alone has not been found to be very effective at detecting uterine cavity abnormalities. As reported by Grimbizis et al 2010, in comparison with hysteroscopy, TVS was found to have lower sensitivity (89.04% vs 97.26%) and much lower specificity (56% vs 92%) in diagnosing uterine cavity abnormalities. It may be difficult to diagnose submucosal fibroids in the presence of multiple fibroids, distinguish between a hyperplastic endometrium and a large polyp, or differentiate between an arcuate and a septate uterus.

Saline infusion sonohysterography; The use of transvaginal songraphy in conjunction with saline infusion improves the delineation of the uterine cavity. It is a well-tolerated procedure and has been found to be highly sensitive, specific and accurate in identifying intrauterine abnormalities. It is therefore being proposed as an alternative to HSG and diagnostic hysteroscopy in infertile patients. The mean pain score was found to be significantly lower. Reports comparing SIS with hysteroscopy have suggested that SIS is highly accurate in both diagnosing and categorizing congenital uterine anomalies. The weighted mean sensitivity and specificity was 93 and 99%, respectively (Saravelos et al 2008).

According to the ACOG (practice bulletin 128, 2012), SIS is superior to TVS in detection of intracavitary lesions such as polyps and submucosal myomas (Level A recommendation).

Furthermore, saline infusion sonography can be easily performed in the office setting. It gives valuable information on the ovaries and can detect adnexal pathology, such as hydrosalpinges, ovarian cysts and polycystic ovarian morphology.

As an alternative to HSG for tubal testing, gel instillation sonography is being increasingly used and it has also shown to be a promising alternative to saline infusion in diagnosing intra uterine abnormalities with possibly less patient discomfort. (Ziegler de, 2009)

3D Ultrasonography; The advent of transvaginal 3D ultrasonography has enabled the accurate, non-invasive, outpatient diagnosis of uterine abnormalities. It can be particularly used for large-scale screening and morphological analysis of congenital uterine anomalies.

Three-dimensional sonohysterography represents a newer diagnostic modality that is an excellent tool in evaluating uterine cavity abnormalities. Makris, et al 2007 demonstrated a sensitivity and specificity of 91.9% and 98.8% with a positive predictive value of 97.1% and a negative predictive value of 96.5% for 3D sonohysterography in detecting uterine cavity abnormalities.

In a prospective study by EL-Sherbiny et al 2011, 32 infertile women who were suspected to have abnormal intrauterine findings by conventional vaginal ultrasonography were included. All women were examined by 2D SIS (saline infusion sonohysterography), 3D SIS and diagnostic hysteroscopy. A total of 34 polyps, 5 submucosal fibroids, and 4 intrauterine adhesions were detected by all three methods. 2D-SIS detected 91% of the polyps (31/34). 3D-SIS detected 97% of the polyps (33/34), as well as hysteroscopy (33/34). All 5 fibroids and intrauterine adhesions were detected by all methods. The intrauterine findings were defined and localized better by 3D SIS. This advantage is even more prominent with multiple or combined intrauterine pathological findings. 3 D SIS is found to have similar efficacy as hysteroscopy but there are no large comparative studies.

Magnetic resonance imaging; MRI is especially accurate in the diagnosis of congenital uterine anomalies. It is a non-invasive procedure and avoids the risk of irradiation. It is helpful in differentiating between bicornuate and septate uterus, in diagnosing a rudimentary horn and also enables volumetric assessment. Due to its high cost and limited availability, it is not feasible to use as routine and its role in the evaluation of uterine cavity in cases of subfertility and prior to IVF remains minor.

Hysteroscopy; Hysteroscopy is considered the gold standard for the investigation of uterine cavity. (Pundir and El Toukhy, 2010). It permits direct visualization of the uterine cavity, revealing the nature, location, shape, size and vascular pattern of uterine cavity abnormalities. It also allows a directed biopsy and therapeutic intervention for the treatment of any pathology. Thus hysteroscopy is performed as a definitive diagnostic tool to evaluate any abnormality suspected on HSG, transvaginal sonography or hysterosonography or in routine investigation of subfertile women.

Compared to transvaginal sonography, hysteroscopy has a much higher detection rate of uterine cavity abnormalities. A study by Bakas et al March 2014 showed that 31.8% of women with normal transvaginal scan had uterine abnormalities detected on hysteroscopy. (n=217)

The main disadvantages of hysteroscopy in the past have been the need for anaesthesia, its relative invasiveness and the associated cost.

However, with progressive reduction in the diameter of new hysteroscopes over the last few years and availability of very small diameter rigid and flexible hysteroscopes, use of vaginoscopic technique and bipolar energy have enhanced safety and led to high patient acceptability. Its use as an outpatient procedure and the opportunity to treat at the same sitting are major advantages of hysteroscopy.

De Placido *et al,* 2007 conducted a study of 950 patients attending for infertility treatment and compared traditional hysteroscopy (rigid, 5mm) with flexible or mini hysteroscopy for uterine cavity assessment and the associated pain scores. Clear visualization of the uterine cavity, findings of uterine abnormality and operating times were similar in both groups, whereas the mean pain scores as a visual analog scale were significantly lower in the flexible hysteroscopy group.($p < 0.001$)

There is an ongoing debate regarding the value of routine hysteroscopy prior to IVF and currently there is no conclusive evidence of its benefit. The NICE guidelines suggest that women should not be offered hysteroscopy on its own as part of the initial investigation for infertility unless clinically indicated. Some studies have found benefit with hysteroscopy prior to IVF. (El- Toukhy et al 2008, Potdar 2012)

A large multicentric randomised controlled trial the TROPHY study, an official project of the ESHRE and the European Academy of Gynecological Surgery carried out by El-Toukhy et al, 2014 has reported that outpatient hysteroscopy before IVF in women with previous recurrent IVF failures does not significantly improve IVF results. (live birth rate of 31% in hysteroscopy group vs 29% in the control group).

Uterine Abnormalities Affecting Fertility

FIBROIDS; Myomas are directly or indirectly associated with 5-10% of cases of infertility. By age 35, uterine leiomyomata are detected by imaging in over 60% of black women and about 40% of white women. The prevalence increases with age. (Baird et al 2003).The incidence of myomas in infertile women without any obvious cause of infertility is estimated to be 1–2.4%. The relationship between leiomyomas and infertility remains a subject of debate.

Studies have shown that the presence of fibroids significantly reduces the success of IVF treatments. Submucosal fibroids strongly interfere with conception (OR for delivery of 0.3 showing 70% reduction. (95% CI 0.–0.8). (Pritts et al 2009). Larger intramural fibroids (> 4cm) even though not distorting the endometrial cavity result in a reduction in live birth rate (LBR) (OR for LBR of 0.79 demonstrating a 21% reduction, 95% CI 0.70–0.88).(Sunkara et al 2007). The presence of subserous fibroids was not associated with a reduction in treatment success. Most of the trials included in these meta-analyses used retrospectively matched controls; Observational studies suggest a fertility benefit for the surgical removal of fibroids.

Postulated mechanisms for reduced fertility

- Encroachment of a submucous fibroid on tubal ostium leads to occlusion
- Distortion of uterine cavity causes longer sperm transport time
- Subendometrial tumours cause endometrial erosion with subsequent inflammation which interferes with implantation
- Disruption of the endometrial blood supply affects nidation and sustenance of early embryo.
- Submucous leiomyoma also have been found to have a global decrease in endometrial Hox gene expression, a molecular marker of endometrial receptivity altering the nature of the intrauterine fluid, resulting in an hostile environment. (Rackow et al, 2008).
- Altered oxytocinase activity and interference with normal rhythmic uterine contractions also contribute to impaired fertilization and implantation.

Removal of fibroids and outcomes

Shokeir et al, 2010 conducted a study on 215 women who had unexplained infertility and were found to have submucous fibroids. These women were randomised in matched groups to undergo hysteroscopic resection or diagnostic hysteroscopy. Women who underwent myomectomy had a greater likelihood of pregnancy than controls (RR 2.1, 95% CI 1.5-2.9). Another study reported a significant improvement in spontaneous conception rates following removal of submucous fibroids and intramural fibroids distorting the uterine cavity.

A study was undertaken by Buletti et al 2004 to establish the impact of surgical removal of myomas on women undergoing ART procedures. Women who underwent surgical removal of myomas before IVF (Group A) had a pregnancy rate of 33% (28/84) and live birth rate of 25% (21/84). Women who

underwent IVF without previous surgery (Group B) had a 15% clinical pregnancy rate (13/84) ($P<0.05$) and 12% live birth rate. (10/84) ($P<0.05$). This study demonstrates the beneficial effect of surgical removal of fibroids before undergoing ART procedures.

There are a variety of surgical methods to remove fibroids including laparotomy, laparoscopy and hysteroscopy. The relative advantages and disadvantages of these modalities in terms of efficacy and side effects are not well known. The staging first described by Wamsteker et al. is widely used to classify submucous fibroids at hysteroscopy and is also used during ultrasound examination. There is a general consensus that type 0 and type 1 fibroids, where at least 50% of the fibroid is within the uterine cavity, are best removed hysteroscopically, whereas the removal of type 2 fibroids, where more than 50% is within the myometrium, is more complex. Type 2 fibroids larger than 40 mm may need two to three surgical procedures to ensure completeness of resection, thus increasing the risk of endometrial damage and complications. A suitable alternative is to remove such fibroids laparoscopically (or by laparotomy) if considered necessary. Although there are no additional fertility benefits over laparotomy, with laparoscopic removal there is significant reduction in hospital stay and febrile morbidity. Regarding uterine artery embolization for fibroids, current guidelines suggest that UAE should be avoided in women wishing to retain future fertility due to the lack of data on outcomes (Bratby et al 2008), and there is no data regarding its use in women with fibroids to enhance fertility.

There are no randomised controlled trials on role of myomectomy in women undergoing IVF however the recommendation is to remove submucuos and cavity distorting myomas before ART (Suresh, Navrekar 2013).

Recent NICE guideline “Fertility: assessment and treatment for people with fertility problems” (Feb 2013) makes a research recommendation that “randomised controlled trials are needed to evaluate any benefits of surgical treatment of leiomyoma on improving the chance of live birth”.

Endometrial Polyps

Endometrial polyps account for 12% of all uterine cavity abnormalities. (Bakas et al 2014). Endometrial polyps are localized hyperplastic overgrowths of endometrium that contain both endometrial glands and stroma. They are mostly benign and have a variable presentation; they can occur as individual or multiple lesions, range in size from millimeters to centimeters, and can be sessile or pedunculated. Although endometrial polyps may be identified during evaluation of abnormal bleeding, many polyps are asymptomatic and only discovered during infertility evaluation. Up to 25% of women with unexplained infertility have endometrial polyps on hysteroscopy (Rackow et al 2012).

Association with subfertility and postulated mechanisms

Elevated levels of uterine glycodelin is a possible mechanism by which polyps impair implantation in IVF pregnancies. (Richlinn SS, 2002). Glycodelin is an important biomarker secreted by the endometrium in a cyclical manner in the luteal phase. In presence of endometrial polyps these levels remain persistently elevated and alter endometrial characteristics which make it unfavourable for implantation.

A study by Rackow et al 2012 evaluated the effect of endometrial polyps on the endometrium using H0XA10 and HOXA11, established molecular markers of endometrial receptivity and found reduced endometrial receptivity in women with polyps.

A randomised controlled trial by Perez-Medina et al, 2005 found significantly higher pregnancy rates in women undergoing IUI following hysteroscopy polypectomy compared to controls (63% vs 28%).

Bosteels et al (2010) conducted a systematic review to look at the available evidence on the effectiveness of hysteroscopy in improving pregnancy rates in asymptomatic sub fertile women. The study found that hysteroscopic removal of endometrial polyps with a mean diameter of 16 mm and above detected by ultrasound doubles the pregnancy rate when compared with diagnostic hysteroscopy and polyp biopsy in patients undergoing intrauterine insemination within 3 months of the surgical intervention. Hysteroscopy in the cycle preceding a subsequent IVF attempt nearly doubles the pregnancy rate in patients with at least two failed IVF attempts compared with starting IVF immediately. The authors concluded that more randomized controlled trials are needed before routine use of hysteroscopic surgery in the general sub fertile population can be recommended.

Although there is lack of randomised controlled studies with relation to IVF, hysteroscopic removal of polyps prior to IVF is recommended. (Suresh & Narvekar, 2013)

Congenital Uterine Abnormalities

The exact prevalence of congenital uterine anomalies is uncertain. Accurate assess-ment and comparison of the prevalence of these anomalies among the infertile and fertile popu-lations in order to detect associations between these anomalies and infertility has been com-pounded by several factors. The use of different techniques with variable diagnostic accuracies, the lack of universally accepted objective diagnostic criteria for each anomaly, the inconsistency in interpreting the classifica-tion of uterine anomalies and the heterogeneity of the populations examined by various studies have all contributed to the difficulty in deter-mining the true prevalence of congenital uterine anomalies.

The European Society of Human Reproduction and Embryology (ESHRE) and the European Society for Gynaecological Endoscopy (ESGE) have established a common Working Group, under the name CONUTA (CONgenital UTerine Anomalies), with the goal of developing a new updated classification system.

Congenital uterine anomalies may result from failure of one or both müllerian ducts to develop, failure of one or both ducts to canalize, abnormal fusion of the ducts or failure of resorption of the inter-vening septum.

T A B L E 1 *ESHRE/ESGE Classification of Uterine Anomalies*

	Main Class	Sub-class
U0	Normal uterus	
U1	Dysmorphic uterus	a. T shaped b. Infantalis c. Others
U2	Septate uterus	a. Partial b. Complete
U3	Bicorporeal uterus	a. Partial b. Complete c. Bicorporeal septate
U4	Hemi-uterus	a. With rudimentary cavity b. Without rudimentary cavity
U5	Aplastic Uterus	a. With rudimentary cavity b. Without rudimentary cavity
U6	Unclassified malformations	

Cervical and vaginal abnormalities are allocated nomenclature from C0-4 and V0-4.

Association with subfertility and postulated mechanisms

Congenital uterine anomalies have been clearly implicated in women suffering with recurrent miscarriage (Grimbizis et al, 2001). In women with infertility, however, the role of these anomalies,and particularly that of the septate uterus, remains unclear.

Several theories have been postulated to explain the potential adverse effects of congenital uterine anomalies on fertility and reproductive outcome.

The evidence to support these theories, particularly with the milder anomalies (e.g., arcuate and subseptate uteri) is deficient and lacking. This is compounded by the fact that an absolutely normal obstetric outcome may be seen with some of these anomalies.

The role of the mechanical factors in cases of severe congenital uterine anomalies (e.g., Mullerian agenesis and cervical atresia) is evident. In cases of less severe anomalies (e.g., bicornuate and septate uteri) there is likely impact on uterine capacity and the arrangement of uterine musculature and may have causal association with cervical incompetence. However, such effects are likely to cause adverse pregnancy outcomes in form of recurrent miscarriages rather than impairment of fertility.

In a retrospective uncontrolled trial (Paradisi et al 2011), 108 women with unexplained infertility and a uterine septum after undergoing metroplasty achieved a 56.5% pregnancy rate with a 19.7% pregnancy loss rate. Mollo et al 2009 reported that hysteroscopic resection of uterine septum significantly improves pregnancy rates and live birth rates in women with unexplained infertility.

There is some evidence to show that presence of septate, sub-septate and arcuate uterus is associated with decreased pregnancy and live birth rates in IVF/ICSI (Tomazevic et al, 2010). This study also showed a significant improvement in live birth rates after hysteroscopic surgery in cases with these anomalies (OR 7.2). Another study by Ozgur K et al, 2007 showed similar IVF outcome as normal controls after surgical correction of uterine septum.

The recent NICE guideline (Feb 2013) has made a recommendation that "further research is needed to evaluate any benefit on live birth rates of surgical resection of uterine septum in women with fertility problems."

Intra-uterine Adhesions

Intrauterine adhesions may result from trauma to the uterus, most commonly following uterine evacuation or surgery. The gravid or recently postpartum uterus is particularly susceptible to adhesion formation following instrumentation. In over 90% of cases, they are caused by curettage. As described by Asherman, these adhesions may be associated with menstrual abnormalities, infertility or recurrent pregnancy loss. Valle and Sciarra used a three-stage classification of the extent and severity of intrauterine adhesions based on findings on HSG and hysteroscopy. These are as follows:

Mild adhesions: filmy adhesions composed of basalis endometrial tissue causing partial occlusion of uterine cavity.

Moderate adhesions: fibromuscular adhesions – characteristically thick and still covered with endometrium that may bleed upon division, and occlude the cavity partially or totally .

Severe adhesions: adhesions composed of connective tissue only, lacking any endometrial lining and not likely to bleed upon division. These adhesions may partially or totally occlude the uterine cavity.

In 1988, the American Fertility Society (now the American Society of Reproductive Medicine) proposed a classification of intrauterine adhesions based on the findings at HSG and hysteroscopy and the correlation with menstrual patterns.

Mechanism of subfertility

The clinical manifestations of intra uterine adhesions include abnormal menstruation or amenorrhea, cyclic pelvic pain, infertility, recurrent pregnancy loss, intrauterine growth restriction, and abnormal placentation.

Almost 50% of the women with Asherman's syndrome suffer from subfertility or infertility, which is the most common presenting concern among patients with intra uterine adhesions.

Besides physical obliteration of the uterine cavity, the remaining endometrium, is often atrophic due to the poor uterine perfusion that occurs in Asherman's. (Polishuk WZ et al). The impaired blood supply likely results from myometrial fibrosis and vascular occlusion. The resulting poor endometrial development and scarring of the uterine cavity often involve the tubal ostia and endocervical canal, further affecting fertility.

Diagnosis and treatment

A history of trauma to the endometrial cavity, particularly following delivery or miscarriage is an important clue to the diagnosis of intra uterine adhesions. Secondary to that is a history of amenorrhea or hypomenorrhea. Because the hypothalamic-pituitary-ovarian axis is intact and there is no hormonal dysfunction these women have normal ovulation. Therefore absence of withdrawal bleeding from a progesterone challenge test in a patient who has a history of postpartum or post-abortal intrauterine manipulation is highly suggestive of the diagnosis. Uterine sounding has been used to ascertain obstruction of the internal cervical os, but it is associated with an increased danger of perforation of the uterus as well as inaccuracy of diagnosis and hence should be abandoned.

The most useful screening test for intrauterine adhesions is hysterosalpingogram. It provides evaluation of the internal cervical os and uterine cavity, delineation of the adhesions, and information about the condition of the rest of the uterine cavity if adhesions do not completely occlude this area. It has the added benefit of its ability to assess tubal patency.

Despite the usefulness of HSG as a screening method for patients suspected of having intrauterine adhesions, the final diagnosis is determined by direct visualization with hysteroscopy. Approximately 30% of abnormal hysterosalpingograms may be excluded or corrected by hysteroscopy. HSG is useful in determining the extent of uterine cavity occlusion but cannot provide an appraisal of the consistency and the type of intrauterine adhesions and reproductive outcomes correlate well with the type of adhesions and the extent of uterine cavity occlusion. For this reason, hysteroscopy is considered the gold standard for the diagnosis of intra uterine adhesions. It allows accurate evaluation by direct visualization, and appropriate treatment can be provided at the same time.

Office hysteroscopy provides a useful diagnostic modality and is often used for second-look hysteroscopy after treatment of these adhesions.

Treatment of intrauterine adhesions is surgical and consists of removing adhesions by division. In the past blind methods of division were used with curettes, probes or dilators, and occasionally division of adhesions under direct visualization by hysterotomy was attempted, but these techniques have failed to produce acceptable results and largely have been abandoned. The use of modern hysteroscopy has permitted trans-cervical division of adhesions under visual guidance. Hysteroscopic methods using mechanical and electrosurgical means, such as hysteroscopic scissors, the resectoscope and lasers are being carried out.

The goal of hysteroscopic lysis of adhesions is to restore the normal anatomy of the uterus. Significantly obliterated cavities may require multiple procedures to achieve a satisfactory anatomical result. Measures like postoperative mechanical distention of the endometrial cavity and hormonal treatment to facilitate endometrial regrowth appear to decrease the high rate of reformation of adhesions.

In a retrospective case report series (Capella et al 1999) the efficacy of hysteroscopic adhesiolysis in patients with severe Asherman's syndrome was evaluated. In 31 patients with permanent severe adhesions, hysteroscopic treatment was performed. Pregnancy rate after treatment was 12/28 (42.8%) and live birth rate was 9/28 (32.1%). In patients d"35 years, 10 out of 16 conceived (62.5%) versus two out of 12 (16.6%) in patients >35 years ($P = 0.01$).

Roy et al 2010 reported a conception rate of between 35% and 84% following adhesiolysis in subfertile women.

Adhesiolysis is more successful in younger women and in those with minimal disease. Poor prognostic indicators are adhesions at both the ostia, age >35 years, persistence of amenorrhoea and re-formation of adhesions at second look.

Although there are no controlled trials with respect to IVF, treatment of intra uterine adhesions is recommended to all women undergoing assisted conception. (Suresh and Narvekar, 2013)

Conclusion

The existing literature provides a biological rationale to support a causal relationship between uterine abnormalities and subfertility, and studies have demonstrated association of uterine abnormalities with unsuccessful outcomes following assisted conception techniques. However these observational studies have methodological limitations and robust evidence is lacking.

Improved chances of spontaneous conception and better outcomes of assisted reproduction technology have been observed after surgical removal of submucous fibroids and endometrial polyps. Resection of uterine septum and removal of intra-uterine adhesions have also been associated with more favourable outcomes. The evidence is however not good enough for a universal recommendation for routine use of diagnosing and treating uterine abnormalities in early stages of management of subfertility or prior to use of assisted reproduction techniques.

Although previous studies have shown improved outcomes in women undergoing hysteroscopy prior to IVF, the results of TROPHY study reported in June 2014 have been neutral and found no significant benefit. The study group was however only women with recurrent IVF failures hence the inference may not be applicable to all subfertile women and those undergoing first IVF cycle. The inSIGHT study (Smit et al 2012) is a multicentre randomized controlled trial to evaluate the costs and effects of routine hysteroscopy prior to a first IVF treatment cycle is estimated to be completed by 2015.

NICE in its recent guideline has made research recommendations for randomised controlled trials to evaluate any benefits of surgical treatment of leiomyoma and uterine septum on improving the chance of live birth. It is thus evident that more high quality research is needed to clearly establish the role of uterine abnormalities in causation of subfertility, and the impact of their treatment on improving clinical outcomes.

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ANALYTICAL VIEWPOINT ON NATURAL GEOGRAPHY OF THE KUHDASHT COUNTY, LORESTAN PROVINCE,IRAN

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Declaration

The Declaration of the author for publication of Research Paper in The Indian Journal of Research Anvikshiki ISSN 0973-9777 Bi-monthly International Journal of all Research: I, *Mojtaba Adinehvand* the author of the research paper entitled ANALYTICAL VIEWPOINT ON NATURAL GEOGRAPHY OF THE KUHDASHT COUNTY, LORESTAN PROVINCE,IRAN declare that , I take the responsibility of the content and material of my paper as I myself have written it and also have read the manuscript of my paper carefully. Also, I hereby give my consent to publish my paper in Anvikshiki journal , This Research paper is my original work and no part of it or it's similar version is Published or has been sent for Publication anywhere else. I authorise the Editorial Board of the Journal to modify and edit the manuscript. I also give my consent to the Editor of Anvikshiki Journal to own the copyright of my Research Paper.

Introduction

The geography word is derived from Greek word "geo" to the meaning of the earth, and "graph" to the meaning of description. The Eratosthenes was a Greek scholar that had lived about 2291 year ago. He had used the geography word for the first time ,and also had known geography as science the study of the earth as man's place.Although geography was a descriptive science at that time, but to time requirements,has been changed, to side of evolution and progress. Therefore geography is science of mutual relationships between human and environment now.The geography science is divided, into two major branches,natural geography and human geography.Human geography, inviestigates effects of mankind activity on changes of natural phenomenon of environment The natural geography is a branch of geography sciences, that investigates, cognition,evolution,extinction and dynamics of the natural landscapes of environment,although the most of these changes, happens, very slowly.To other expression, natural geography is the study of natural features of the earth,like land, sea and the atmosphere around us. Hence,natural ngeography is confluence point and interaction between, atmosphere,hydrosphere and lithosphere. Therefore we shall explain, natural geographic features of the Kuhdasht county of Lorestan province of Iran,with analytical viewpoint, in this article.

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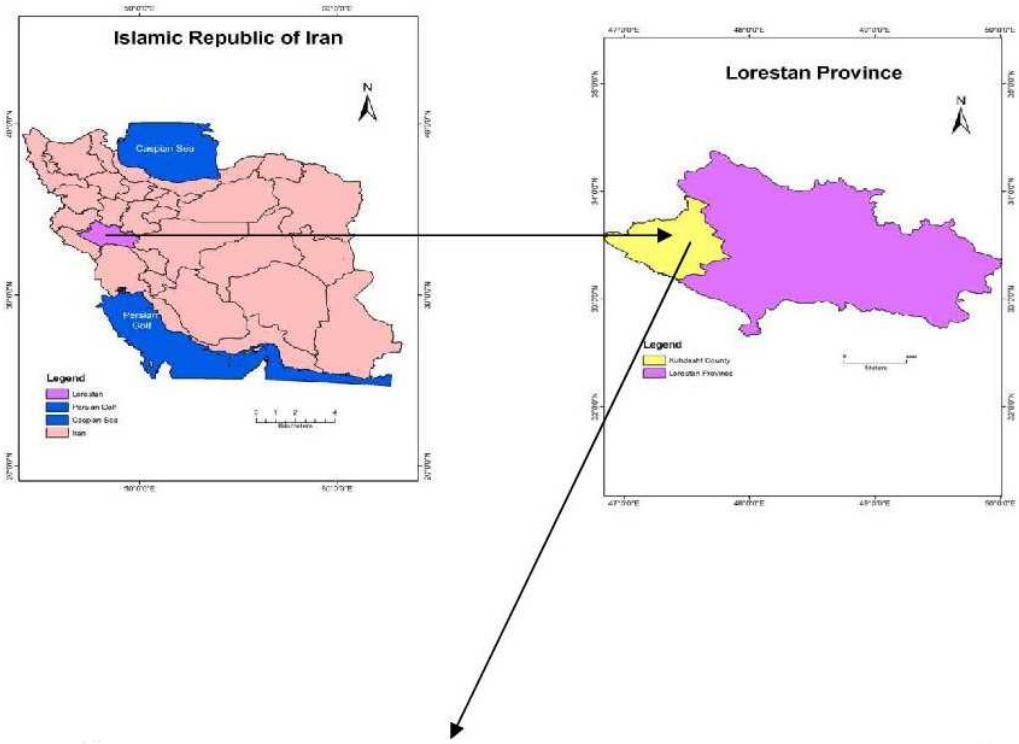
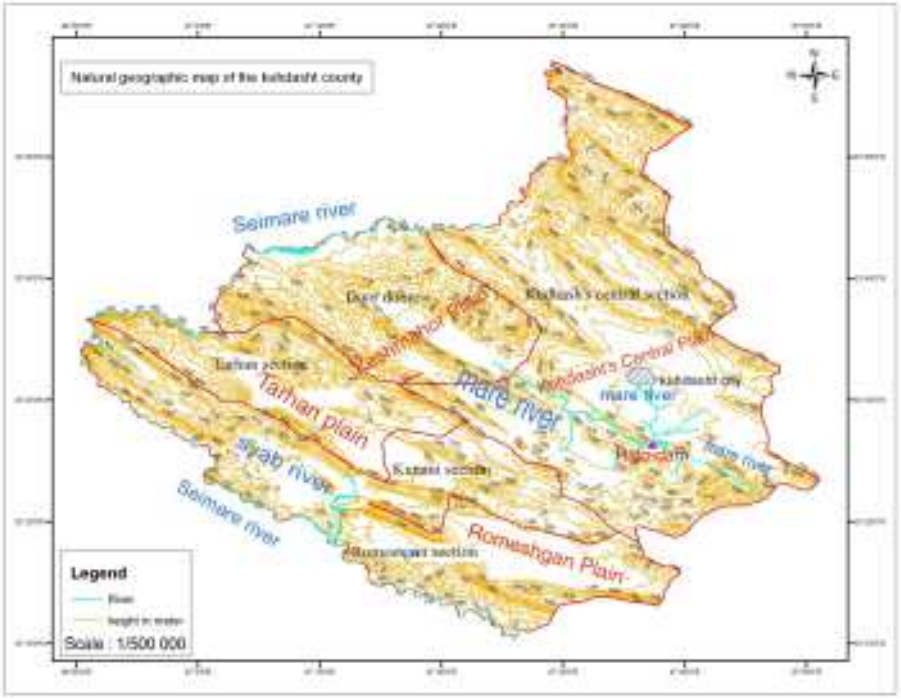
The study area

Location of the Kuhdasht county, lies between 33º 9’ to 33º 56’ N latitude and 46º 51’ to 47º 50’ E longitude(Face of economic,society,...of the Kuhdasht county,2008). This county is located in the west of Lorestan province in the west of Iran . According to the maps of the country mapping organization, the area of the Kuhdasht as obtained by GIS is 3982.133 sq.km .The Kuhdasht city is capital of the Kuhdasht county and is located in the east part of the Kuhdasht coun-ty..

position of the Kuhdasht county in Iran

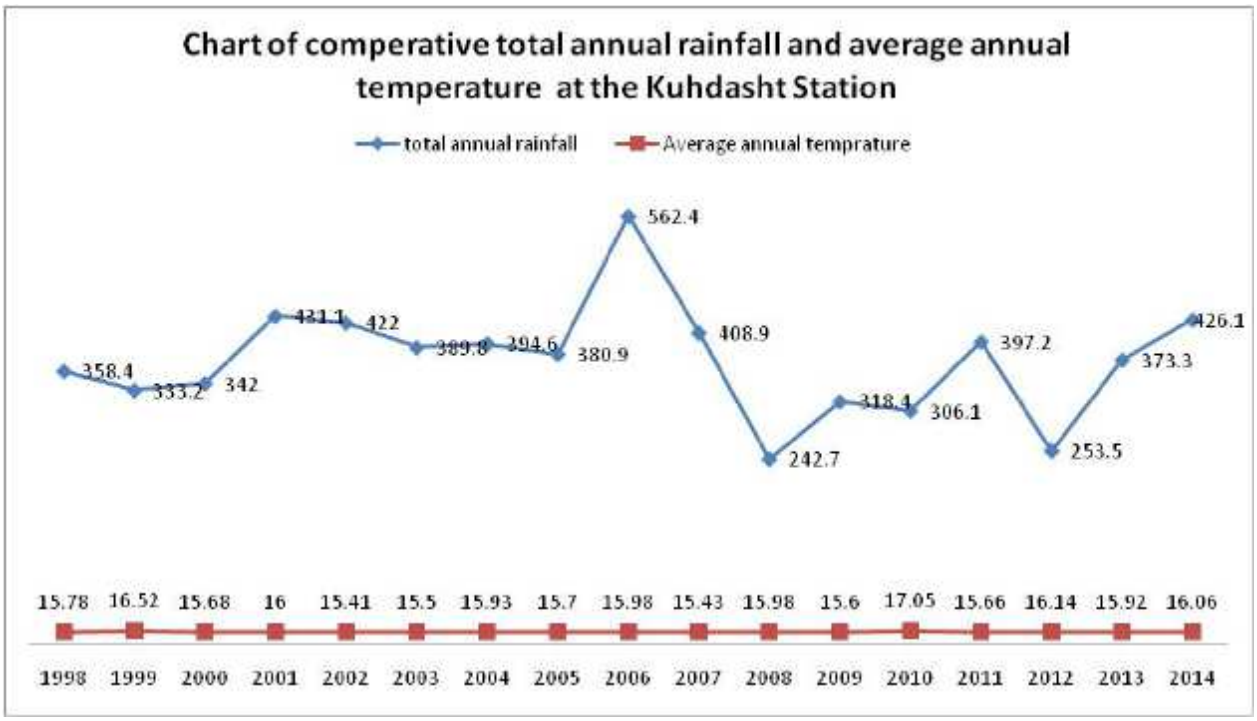




Situation of the main elements of the atmosphere

Rainfall: The rainfall in its diffrent forms is,resource of the water security and also life support on the earth. All problem at decreasing or water deficiency,confr- onts,mankind with serious problems (Jahanbakhsh asl saeed et al,2002).The mediterranean air mass from the west side and the Sudanese low pressure from the southwest side,are two humid air mass that causes to rain of the average rainfall in the forms of raining and snow,for the Kuhdasht county,between November to April. Therefore factors of rainfall for the study area are,synthetic from activity the mediterranean air mass and sudanese air mass,simultaneously,in autumn and winter season.The mediterranean air mass usually enters from the west side and sudanese air mass from southwest to the Kuhdasht county, also crumble, the most of their rainfall to the rain form.With attention to statistics of the Kuhdasht meteorological station, the most average monthly rainfall, is in February with average 62.70 mm and then in November with average 61.87mm during the statistical period 1998 to 2014. Thus February and November are respectively, have the most, average montly rainfall .The least average of monthly rainfall is in August with 0.17 mm for the listed statistical period. In the listed statistical period, the most and least amount of annual rainfall are respectively recorded, 562.4 and 242.7 in mm in 2006 and 2008.

Analysis: As shown in figure 1,annual rainfall has tangible oscillation, in the listed statiscal period,therefore this oscillation, could not be happened, to the reason of regional position,because relative position and geographic condition are fixed. But this oscillation, has been happening, by activity of factors, out of region, like El Niño,climate change and SST of the Mediterranean basin.(i) El Niño-Southern oscillation(ENSO),has known as, a important indicator,that can justify, changes of year to year of rainfalls (Nazemosadat ,1999).El Niño effect on Iran climate, is indirect, its symmetry



(Fig 1):total annual rainfall amd average annual temperature for the statiscal period 1998 to 2014 at the Kuhdasht station.

is with autumn and winter seasons in the Northern hemisphere that affect, amount of the time and local distribution of rainfalls (ii) The effects of climate change,on oscillation of universal rainfall has proved ,this factor is one effective factors on oscillation of annual rainfall in Iran .Because its effect appears in maximum and minimum of Iran rainfalls.(iii)With attention to done researches ,the effect of sea surface temperature or SST of the Mediterranean basin on rainfall oscillation,is clear. Because with increasing or decreasing Mediterranean Sea surface temperature,the evaporation amount and moisture of the Mediterranean low pressure will be changed,in consequently, rainfall amount, year to year will be changed.Ofcourse the effects of these factors on rainfall oscillation of the Kuhdasht county will be separate, or simultaneous sometime.

Temprature: The temprature is as a the climatic main elements that has, the important role in increasing or decreasing,and also moderate of the effects of other climatic elements. It is important and effective factor,on appearance of special condition of climate,for all of places.The Kuhdasht county to the cause of ,relative position and special geography ,has shown,temprature amplitude and distribution of relatively same, during each year,in the statistical period 1998 to 2014.The coldest month of the year,is January with average 4.7 ºC and the warmest month, is August with average 28.14ºC, in the listed statistical period. The highest and lowest average annual temperature are, respectively 17.05 ºC in 2010 and 15.41ºC in 2002.(fig.1).

Analysis: As shown in figure1,average annual temprature has, changes domain relatively low in the listed statistical period .This matter is explanatory,a little effects of county geographic latitude, and more effects by climatic condition of out of area, on county ‘s temprature. To other expression, temprature oscillation is more, dependent to relative position and factors of out of area and also its stability is dependent to geographic latitude ,which It is usually fixed for county. Therefore to this reason, temprature changes domain is not very much and also this low change is due to the effects, of factors of out of area like ,climate change, SST of the Mediterranean basin and El Niño.Because temperature oscillation, is usually dependent to relative position and factots of out of area.

Situation of the main elements of the hydrosphere

Physiographic: In physiographic part,we shall express, physical specifications of the study area. There is the highest point of county,in the Henjas height, with altitude,2200m,above sea level,in the northeast county.The lowest parts of county,have altitude about 600 m above sea level,that there are in the southwest edge of county,at proximity with the Seimare river.The longest of county ‘s external waterway, is the Seimare river,on the border with Kermanshah and Ilam provinces,and also the longest internal waterway is the Mare river. There are three main direction of slope,northern, southeast and southwest, that southwest slope is the faster than other directions. The average slope of the Mare river and Syab river are respectively,1.21 and 5.58 percent (Institute of engineering of consultant of Twilight Water Structure ,2006). This matter is explanatory,that the fastest slope in county inside, is to the southwest side, that is right, in the flow direction of the Syab river.Length of the main and subsidiary waterways of the Mare river and Syab river are respectively,87.523and 61.505 Km. The catchment area of the Mare river is 1108 Km^2,and the centralization time of water on it, is 14 hours, and also catchment area of the Syab river is 575 km^2 and the centralization time of water on it, is 8.3 hours.

Analysis: Water centralization time of rivers are dependent, to catchment length,river bed slope and catchment figure.Whatever,cathment figure,be rectangular, water centeralization time in its waterway,will be more. Ofcourse in condition low discharge of river water,centralization

time,increases.In totally could say,with attention to compressed figure of the Kuhdasht county, water centralization time in two rivers of the Mare river and Syab river could not be, very much,but this time, to the cause of height direction,and meandering of their direction, has been increased for both river.Slop directions on the basis of county slope map are crossover and coincident together. This condition is good condition for keeping and protecting of soil. There are three direction of main slope in county that are coincident with the flow direction of the Mare river,Syab river and Seimare river.To create of new small slope in wild height of county usually, create slowly, and with the time pass ,because wild height attract, important part of rainfall .Therefore in this condition, the older slope, deepens more.

*Hydrology:*In totally,the Kuhdasht county, has two internal catchment, to the name of the Mare river and Syab river and also one external catchment, to the name of the Seimare river.There are two hydrometery station in the study area to the name of Baraftab station at altitude790m on the Mare river and Thief Valley, at altitude 900 m on the Syab river.Although to the cause of decreasing rainfall, runoff amount of the Mare river and Syab river has been decreasing dramatically,in recent year. But in the Seimare river cathment, has not been observing ,tangible decrease ,in runoff amount.On the other hand,the Seimare river catchment ,is only external catchment of the Kuhdasht county,that has permanent water and also originates from adjacent provinces with Lorestan province and, flows on the border of this county with adjacent provinces of Kermanshah and Ilam. This river to the cause of the surround of the Kuhdasht county from the north and west has the important role, in attracting of the county ‘s surface runoff.The Seimare river,Mare river and Syab river have respectively had,average annual recharge 105.42,1.70, 1.46(m^3/s) in the statistical period 1970 to 2002.

*Analysis:*To the cause of the existance of multiple mountains and plains, slopes direction of county are not, usually very long,and this topic is important factor in preventing of destructive effects of runoff on soils of the Kuhdasht county. To the cause of be mountain and the existance of Oak forests,in county ‘s further height,produced sediments volume, that exits from access,by main rivers and subsidairy waterways, is low. Because the existence of Oak forests,cause to keep of soil and reduction surface runoff volume.County rivers runoff have, sediment shipment role to out of county ,on the opposite side ,small waterways in height and plains, to the cause of be low of length their flow direction,maximum from mountain top to foothills and plains,have the important role in the soil production process. There is permeability possibility of waters due to rainfall to groundwater generally,with coarse sandy texture in height domain and foothills. But this permeability possibility in Asmari Shahbazan formation to the reason primary prosity due to seam and gap and also in Talehzang formation to the cause of the existence secondary prosity, of due to Lime breakup, along with abundant seam and gap, have been increased.

*Water resource:*The water resource value can not only be limited,to detoxify of requirements of human activities,but It has found,the political importance nowadays (Rahmani, 1996).In recent year,the groundwater amount of the study area is decreasing,this event,has been appeared,to the three outstanding reasons:(i)increasing removal from groundwater (ii) decreasing rainfall (iii) deforestation.The consequences of these events are decreasing potential of water reserve,increase of evaporation amount, going down of the groundwater level. The evaporation amount from water resources is usually very much, even at the rainfall time ,this subject,has been caused to decrease of groundwater resource and the surface water resource.The county’s surface water resource, are inclusive:same three catchment of listed rivers,but groundwater resource, are inclusive:the number 117 deep well,581 semi-deep well and also there is the number 67 source in overall county.In recent year,county people,exploits from Halo dam that, has been made, on the Mare river.To create of other dam to the name of Mashurah,is studying,on the Kashkan river.

Analysis: The most amount of county's consumable water,uses in the agriculture section. The abundant number of county wells,are indicative,high volume removal from this groundwater. The county 's economic dependence to agriculture income,has caused that,this section has been turned to the greatest part of demand for water consumption,after this part has respectively been perched domestic and industrial sectors.The important water security resource of county agriculture section,in the first time,is groundwater and then surface water,like the seimare river ,Mare river and Syab river.At among these rivers, the most of using share, for county agriculture activities, are respectively,the seimare river,Syab river and Mare river. Floodwater broadcast is one method in direction of controling and desirable operation from floodwater.This method has, positive effect in opposition with drought,crisis of decreasing water,and stable operation from water.Floodwater broadcast is one method of artificial nutrition for groundwater that has been proved for increasing water level of unlimited aquifer.In artificial nutrition should be indefeasible,hydraulic communication, between artificial nutrition location. Factors that cause to cancel of this communication consist: inscrutable fault, inscrutable layers like clay,or igneous Dykes.(Mahdavi,2010) .In county foothills to the cause of having soil with coarse sandy texture and decrease of the amount of soil clay,there is the possibility of creating sluice or small dam .To create of this purpose is, in order to bridle floodwater and floodwater broadcast to the purpose artificial nutrition of its around. It is a desirable solution for increasing county groundwater.

Situation of the main elements of the lithosphere

Geology: The study area in classification of old tectonic area,is belonging, to the wrinkled Zagros,that has created with the collection of compressed anticlines and synclines,that has draged, in the direction of the northwest to the southeast. The geology studies shows that the most stony outcrop of the Kuhdasht county is belonging to the Mesozoic-Cenozoic course,furthermore,listed studies, does not show, important fault, in whole county.The depth maximum of sediments in the Kuhdasht 's central plain is 300 meters,in the western and eastern parts of plain. InTarhan plain,depth maximum, reaches to 50 meters in the northwestern part of plain and also in Kashmahor plain,depth maximum,there is in the west and north of plain.

Analysis : This is a scientific law, that everywhere, we have wrinkled land ,the density in its area underground is low.To this reason, the Kuhdasht county,to the cause of be montain and porous bed stone,has low density in its underland.On the other hand ,with attention, to plate tectonics theory, about movement forms of the earth's crust plates ,Saudi Arabia plate, with the more density, moves to Iran side, and in impact with Eurasia plate that Iran is perched in this impact border,causes to create earthquake that observes its effect to earthquake form with direction of north to south in the Kuhdasht county.Nowadays,sometime,we have this earthquakes kind with this origin,because as we told, the Kuhdasht geology structure with attention to have porous bed stone, allows to incidence of this happening.Impact border of tectonic plates in continental areas,is the biger than oceanic areas (Rastbood,2012).Therefore whole Zagros of Iran is belonging to this impact border,between Sudi Arabia plate with Eurasia plate ,with attention to geographic position of the Kuhdasht county that is perched, in this area. In consequently,its geological features,is impressionable by convergence effects and impact of these two plates, together.

Stratigraphy: The oldest formation of county stratigraphy,is Gurpi formation.The youngest of county sediments,are belonging to third geology course ,that are inclusive, alluvial sediments and orogeny in plains,foothills and height of the study area.There are seven formation of stratigraphy to the

names of,Gurpi, Amiran,Talezang,Kashkan,Asmari Shahbazan,Gachsaran,Quaternary in the study area.Here we shall explain,their specifications,briefly.(i) Gurpi formation has a little resistance in facing,with the weathering and erosion processes,and has not also been observed,to the form of high altitudes in whole county.Therefore have morphology of rather quiet in the study area.(ii) Lithology of Amiran formation is inclusive: siltstone and olivaceous sand,up to brown,which are also perched, altern- atively.Other features of this formation is,upper erosion and rather low morpholog- y,in the study area.(iii) Talehzang formation is a local formation,that has just appeared,in Lorestan province.The features of this formation,is rough morphology, smooth rocky walls, the existance rather abundant gaps and porosity,especially, secondary porosity,due to the Lime breakup operation.In consequence,its permeability amount,has been increased,in the Kuhdasht county.(iv) Kashkan formation from lithology perspective, is inclusive, Conglomerate,sandstone and red siltstone.Other local features of this formation,is weathering and severe smashing, at the level of this organization, in the study area.(v) Asmari Shahbazan formation, to the cause of the existance of abundant seam and gap,high porosity,has good permeability for saving groundwater.(vi) Gachsaran formation lithology is inclusive,Gypsum Anhydrite,red and gray Marls,Lime and quantitative salt alternatively.This formation,has wide extension,in parts of the northern county. (vii)Quaternar formation is really covering,with sediments that,are the yield from, erosion, analysis,destruction of renewed sediments of the yield of old and available structure,at height.The genders of these sediments are always organized ,from gravel,sand,coarse sand,silt and clay.These sediments in foothills and plains margi-n are, coarse grain, and whatever we go from height margin, to side of centre and output of plain,they will be changed, to the form of fine grain.

Analysis: County formations in the present,at the most of stony outcrops are according their ages as follows: Gurpi, Amiran,Talezang, Kashkan, Asmari shahbazan,Gachsaran and Quaternary sediments (Hakimi,et al,2010).As is clear, geological formations,have outstanding role on grounwater quality,and also this quality has,direct dependence to their effects.These effects could be due to senthetic effects of formations, simultaneously or effects of a specific formation that shows these negative effects to the form of passion,bitterness,heaviness and solution sediment in grounwater.One of county geologic formations that influence county ‘s groundwater effectively,is Gachsaran formation. To the cause of having Gypsum and Anhydrite,is talented of high breakup. This formation has very important role in groundwater destruction and also convert them,to salty and bitter waters.The most extension of Gachsaran formation,exist in Zirtang rural distric, around of the Seimare river,Romeshgan section, and the northren part of the Kuhdasht county.The weak permeability is one of the characteristics of Amiran formation .To the cause of the Siltstone extension in this formation, water permeability in it is low. and it does not have considerable water resource. Gurpi formation is known as impenetrable classes, to the reason of development of Marl layers in it, however, it does not have considerable groundwater.The karst phenomenon has been developed, substantially in Asmari Shahbazan formation of the study area ; This happening has been created to the reason of the existance of abundant gap and also high prosity degrees; Furthermore we can see the most progressive carbonated rocks in this formation (Hakimi,et al ,2010). The quality of Asmari Shahbazan karstic water reservoirs, are affected by,formation of salty and chalky Gachsaran, because is perched upon it. As expressed, Asmari Shahbazan formation has the most important role, in the security of the Kuhdasht county groundwater.As expressed in (Fig. 2),Asmari Shahbazan formation from the perspective of sensitivity to erosion, is resistant.Thus against of erosion factors,it has not been showed, any tangible destruction and also has, high saving potential, for groundwater.

Formation name	Summary mark	Lithology	Sensitivity to erosion	Erosion Class
Gurpi	Cu	dark gray Marl,willing to blue, Shale, marnie Lime	Sensitive	III
Amiran	Am	Siltstone, olivaceous sand, Conglomerate, Shale, quantitative Lime	Sensitive	III
Talezang	Tz	gray Reef Lime till brown with average layout	Sensitive	III
Kashkan	kn	Conglomerate, Sandstone ,red Siltstone	very Sensitive	IV
Asmari Shahbazan	As-Sb	Cream Limes till brown, Dolomitic Limes, white Sugary grain dolomite	Resistant	I
Gachsaran	Gs	Alternative from Gypsum ,red Anhydrite and Marl,Lime, quantitative salt	Sensitive	III
Quaternary	Qt	gravel, coarse grain sand,silt,clay	Semi-sensitive	II

(Fig 2) geologic formations specifications of the Kuhdasht county

Soils identification: In order to become better of the soils study of the study area ,we shall check, their soils for each of county sections, seperatly. In the range of central section of the Kuhdasht county,we have four soil types,that all of them are partial from brown soils.These soils are inclusive:Zalyab,Chiasorah, Redstart and Kuhdasht series. The Zalyab type is partial of brown soils group, very deep and to brown color up to brown willing to gray, that has sandy texture, along with quantitative clay and silt, and also its building, is to the angular and cubic form.This soil type usually exist in rough plateau in central section of the Kuhdasht county. The Chiasorah soil type, is partial of brown soils group, very deep and to dark brown color,with centralization horizon of clay, and sandy texture, along with quantitative clay and silt and also its building is, cubic form. This soil type usually exist in cut plateau in central section of the Kuhdasht county.The Redstart soil type is, partial of brown soils group,very deep,to dark brown color,up to brown willing to red,has sandy texture along with quantitative clay and silt. The building of this soil type is to the form of weak cube, and has a lot of Lime and Plaster. This soil often exist in alluviums of butterfly-shape of escort with gravel in central section of the Kuhdasht county.The Kuhdasht soil series, is partial of brown soils group,very deep,to dark brown color,up to brown willing to red,with centralization horizon of Argillic clay,has sandy texture,along with quantitative clay and silt. The building of this soil is, to the cubic form,with amount of high ingredient of hard-set Lime. This soil type usually exist,in alluvial plains of in central section of the Kuhdasht county.In Tarhan section,has only tested two type of soil,to the names of Katkonar and Pie-Astan.The Katkonar soil is to brown color,bowed to dark yellow,with the average texture of clay,sand, silt,loam, quantitative gravel,and with the potential of the upper fertility.The soil type of Pie-astan,is very deep soil,with heavy texture,from clay,sand,silt, loam, and with compressed building. This soil type has large amount of Lime in horizon between 90 to 140 cm of soil,and has the potential of the upper fertility.In Door dome section,two soil types, has only tested. These soils are inclusive, Boluran type and Shiravand. The Boluran soil is deep soil ,in the dry state, to the brown color,and in the humid state to the brown color bowed to gray,with heavy texture of sand–loam..The soil type of Shiravand is,in the dry state,to the pale brown color,in the humid state, to the brown color,with the average texture of sand-loam,and compressed building.

This soil has, low amount of Lime and has also 90 percent of gravel.These two soils of Door dome section,have the low average potential in fertility.In Romeshgan section, has tested ,soil types that are inclusive:Gravand,Bazvand,Tang Barah,Padervand Kahriz and Amraei.The common feautres of these soils, consist : large amount of Lime,the existance of Carbon, gravel,specific horizon of premature Humus and with the upper potential of fertility.We do not have any tested soil, in Kunani section.

Analysis: Soils of five sections of the Kuhdasht county,are often have, synthetic texture from sand, loam,silt,and clay along with compressed structure, till average and some gravel and also have, enough humus and mineral materials.They have favorable condition,from fertility perspective. Existance of section of rather perfect from lake sediments in the south of the Kuhdasht ‘s central plain , animals bodies of sweet waters,and also red soils due to oxidation of Iron, are strong reasons on the existance of Quaternary lake in this plain. Quaternary sediments of the yield from this happening, in the Kuhdasht ‘s central plain soils,are senthetic from abundent organic materials and mineral materials.Thus soils of Kuhdasht ‘s central plain to the reason of the existance of Quaternary lake,have abundant humus,and diversity mineral materials.In consequencly,they have high fertility. Ofcourse, shapes of Tarhan and Keshmahor plains are similar, to listed plains ,and geological maps,shows,level of these four plain,has been covered, with Quaternary sediments.Soils of Tharhan and Keshmahor plains,have compressed structure along with fine texture in plain centre till, expanded structure with coarse texture in foothills. In Romeshgan plain,with attention to proof of the existance of Quaternary lake,plain soils,had affected,by activity of this lake,thus they have abundant humus,and various mineral materials,because, lake sediments has had important role in richen, plain soils.

Conclusion

In fact,two categories of factors are have,the outstanding role in the creating condition of natural geography for the kuhdasht county,which they consist:(i) The first factor is relative position of the Kuhdasht county, that is inclusive: proximity with the Iraq desert,the Saudi Arabian desert and Khozestan desert of Iran (ii) The second factor,is geographic position of the Kuhdasht county, that they consist:geographic latitude,direction of mountains,altitude of the sea level direction of incoming air mass to county.To the cause of the existance of diverse altitudinal domain,we see,microclimates,like Syab ‘s Zirtang , northern Kuhdasht rural district,sides of the Seimare river in the west of the Kuhdasht county. Instance, Syab ‘s Zirtang,is rural district that is located,in proximity of the Seimare river, in Kunani section.To the cause of having the altitudinal domain between 600 to 900 meters,has the warmer climate than its adjacent region,like Kunani rural district.At the opposite point ,the northern Kuhdasht rural district is located in the north of the Kuhdasht county.To the cause of having , further altitudinal domain, between 1000 to 2000 meters,has the cooler climate than its adjacent region like, Kuhdasht ‘s central plain.Here we observe,that altitude factor has the direct effect, at the creating,of natural landscape of the Kuhdasht county.Because this factor respectively determines,rainfall amount,vegetation type,produced soil type directly. The dominant direction of anticlines and synclines of the Kuhdasht county,are the northwest to the southeast.The county ‘s anticlines, have a littl effect, on the amount and distribution of rainfall,because,all of anticlines are have, the average altitude,except,two anticline of Boluran and Henjas,which are higher.The Mediterranean air mass usually arrives, from the west side, to the Kuhdasht county in autumn and winter season.In consequencly, the western domains, must have further rainfall, and the denser vegetation,but the eastern domains has, the denser vegetation in overall county.This subject is to this reason, that the eastern domains to the cause of situating at the shadow,amount of their evaporation are low. Therefore they are wet, also have, necessary condition for growing of vegetation.

Results total, will be expressed, briefly

- Factors out of county region,like SST of the Mediterranean basin, El Niño-Southern oscillation(ENSO) and climate change, have had,significant effects, on rainfall changes of the Kuhdasht county.

- Altitude factor, has caused to beget, several microclimate in whole county.
- Mediterranean air mass has, the most role, in county rainfall.
- Asmari Shahbazan formation has,significant role,in keeping and saving of county 's groundwater, and also Gachsaran formation has,important role, to salt and embiter of county water resource.
- Kashkan formation,is the most sensitive and fragile of county formation, against erosion factors.
- Saudi Arabia plate, has had significant role, in shaping to county 's wrinkles.
- Smal waterways are as, one of factors in carring sediments for generating soil in county.
- Evolution of soils of the Kuhdasht 's central plain and Romeshgan plain, were affected by the existance of Quaternary lakes in these plains.

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AYURVEDIC TREATMENT A BOON FOR SCIATICA PATIENTS

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Declaration

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Abstract

Sciatica is also known as sciatic neuritis sciatic neuralgia and lumbar radiculopathy. Changing of life style of modern human being has created several disharmonies in his biological system. As the advancement of busy and sophisticated professional life, improper sitting posture in offices, long time sitting on the computers, factories, continuous overexertion, jerking movements during travelling and sports – all these factors create pressure over the spinal cord and may play an important role in producing low backache and sciatica. About 2 to 40% of the society have sciatica in their life. It is most common during 4th and 5th decade of life. Men are more affected then the female. It is the second most common affecting disease the working population."Sciatic Syndrome" - a condition described in modern medicine resembles with Gridhrasi described in Ayurveda. In sciatica there is pain in the distribution of sciatic nerve which begins from buttock and radiates downwards to the posterior aspect of thigh, calf and outer border of foot. The pain and the disability caused by sciatica affect the day today activity and occupation which in turn makes the patient to seek the medical advice.

Introduction

Lumbago refers to low backache and Sciatica is a pain in the distribution of sciatic nerve.Lumbago sciatic syndrome is a usual presenting feature of lumber spondylosis.[1]It hurts to sit, to walk, and even to lying on bed. In general 5-10% of low backache have sciatica. Life time prevalence of low backache range from 49-70% The changed life style, stress, excess travelling, improper postures, occupation, all these interfere the normal life. Lumbago/Sciatica is the common outcome of the above. Low backache

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refers to pain from the lower lumbar areas, lumbo-sacral areas and both the sacroiliac joints. It is the second most common cause affecting the working population[2]. Improper sitting posture, jerky movements during playing and bike riding, weight lifting. All these create an undue pressure over the spinal column and play an important role in producing low backache and sciatica. A lot of investigation i.e. X-ray L.S. Spine, mylography, C.T Scan, M.R.I are use to diagnose the conditions. Over the counter pain relievers such as acetaminophen, aspirin or NSAID such as ibuprofen, diclofenac, ketoprofen, are used, muscle relaxant to ease the muscle spasming, and antidepressant for chronic pain are used for relieving pain.Injection on tender spot with 5% Procaine, counter irritation, heat massage,epidural injection of 10 ml 2% novacaine followed by 100 ml of NS.[3] Extension exercises are also instructed to the patients[4]. Sometime steroids injection are given for immediate relief, various surgery i.e. Microdiscectomy, and lumber laminectomy are opted.

Pain in sciatica begins in lower back and radiates in buttocks and down the back of one leg. On the basis if this symptom it simulate with Gridhrasi of Ayurveda. Charaka considers it as a vata nanatamaja vyadhi. According to Dalhana, Gridhrasi is commonly known as Randhni.[5]

Etiological Factor

The *vata vyadhi nidana* specific to the diseases causing *Gridhrasi* are categorized as *agantuja* and *nija.*

Aagantuja karana; Hit on the back, fall from a height are the common forms of trauma (*abhighata*). When the intensity is mild, this may cause minor injury in the *snayu, sira, khandara, Asti and sandhi* of *Kati pradesha* or in severe cases it may cause severe injury to these structures causing *sandhi cyuti or asthi bhagna*. There will be an acute and severe pain with or without radiation. When the *kandara or tendon* are affected, then radiating pain will be the symptom. Injury to the *kukkundaramarma* in the low back will result in c*hestahani* of *adha kaya, sparshaajnata*.

N*itamba marma* injury leads to *adhah kaya shosha* and *daurbalya*.

Nija karanas; They are categorized under *aharajanya* and *viharajanya.*

Aharajanya; Harenu (Pisum sativum) , Jamva (Egenia jam bolana) , Kalaya (Lathyrus Sativas,Sushka saka (Dry Vegetables) ,Trunadhanya (Grassy grains) ,Vrudhaka (Germinated seeda Rukshanna,Laghvanna (Light diet) Excess of *Katu rasa* dominant food intake causes *karshana* and because of *agni* and *Vata guna* dominance. They produce *vata rogas* in *pristha* and *parshva*. Excess of *tikta rasa* intake causes *shoshana* of all the *dhatus* and produce *vata vikaras*. Excess of *kashaya rasa* dominant food intake causes *karshana* because of *khara ruksha guna* it causes *vata vyaddhi.*

Viharajanya; Ashamchalana (shaking of stone) , Ashamavikshepa (Throwing of stone), Ashamotkshepa (Pulling down stone), Balvata Vighraha (Wrestling with healthy one) Shilotkshepa (Pulling down rock) , Bharavahan (loading). These factor can cause spasming of pyriformis muscle which can compress the nerve. Movements like weight lifting, fall on the buttock, direct trauma over the back, twisting movements, these all increase in pressure suddenly which will result in rupture of annulus, or Dukhasana (Uncomfortable sitting), Dukhashayya (sleep on Uncomfortable bed),). Ati Vyaayama (Violent exercise), *vicheshta(Ill posture) Dhukha shaiya sayan(Uncomfortable bed),* bad posture which increases the strain on the ligaments and discs causing degeneration. These degenerative changes make the disc susceptible for the trauma or may rupture without any cause. *Ushtra ,Ashwa ,yana(causes jerky movement),* Repeated bending, twisting activities, posture which cause unbalanced spine lead to repeated strain over the muscle, ligaments, disc in the low back leading to the degeneration. These also lead to arthritis of the facet joints in the low back region.

Pathogenesis

Samprapti Ghataka; Dosha— Vata and Vatanubandhi Kapha, *Dhatu*— Rakta, Mamsa, Meda, Asthi and Majja, *Srotas*- Mamsavaha, Medovaha and Asthivaha, *Srotodusti*- Sanga, Margavarodha, *Udbhavasthana*- Pakvasaya, *Adhisthana*— Kandaras of Sphika, Kati,Uru, Jangha, Pada, *Agni*— Jatharagni, Mamsa, Meda, Asthi and Majja dhatwagnimandya.

Vata Prakopa Ahara-Vihara gives rise to aggravation of Vata and at the same time on other hand, Ruksha, Khara, Laghu, Sheeta, Daruna,Vishada guna of Vata suppresses the Snigdha, Guru, Mridu, Pichchhila and Sandra guna of Kapha which leads to decrease of Sleshma. Increase in vata lead to the depletion of tissue and decrease in kapha dosha . Sleshaka kapha that is found between the joints decrease in their amount and create dehydration of intervertebral disc and give opportunity to prolapse in presence of any trauma, or jerky movements. The vitiated Vata causes the Asthi Ksaya i.e. degeneration of the bones, which is the main event found in the pathogenesis of lumbar spondylosis. Due to the degeneration of intervertebral discs, the space between two adjacent vertebrae is reduced. Decrease of Sleshma specially occurs in Pristha, Kati, Sakthi etc. and in Kandara (according to Sushruta) and replaced by aggravated Vata. Thus, Vata gets situated in Kandara and gives rise to the symptoms.

Purvarupa; In classics, there is no description regarding the Purvarupa of Gridhrasi but Gridhrasi being a Vata Vyadhi according to Charaka. The Poorvaroopas of Vata-Vyadhis are Avyakta. When they are manifested, it is their atmaroopa. (C.Ci.28/19).

Rupa Of Gridhrasi

According to Acharya Charaka; Ruka – (Pain),Toda – (Pricking sensation),Stambha – (Stiffness), Muhuspandana –(Twitching) pain in waist, hip, back of the thigh, knee, calf and foot are the symptoms of Vataja Gridhrasi. Pain in the back, aching in character and intensified by spinal movements. Pain in the buttocks and thigh, also aching or pricking in character and influenced by posture of the limb. Pain radiating to the leg and foot gets momentarily increased by coughing and sneezing, when the first sacral root is compressed the pain radiated to the outer border of foot. When the pressure is upon the fifth lumbar root pain spreads from the outer aspect of the leg to the inner border of the foot. In general, the pain is intensified by stooping, sitting and walking. The patient being usually most comfortable lying in the bed on the sound side, with the slight flexion of affected leg at the hip and knee. There is often a feeling of numbness, heaviness or deadness in the leg, especially along the outer border of foot.

In addition to the above symptoms Tandra (drowsiness),Gaurava (Heaviness),Arochaka (Anorexia) are found in Vata Kaphaja Gridhrasi. (Ch. Chi. 28 / 56-57).[7]

Dehapravakrata; Madhava has mentioned this symptom in Vataja Gridhrasi .This symptom is characterised by lateral bending of the patient. Because the patient trys to put his body weight on normal leg and gives a typical posture.This symptom come in Scoliosis. Scoliosis is often associated with Sciatica and the lumbar spine being flexed towards the affected side.

Sakthikshepa Nigraha—Restricted lifting of leg.[4]

Prognosis; In classics, no separate prognosis is mentioned regarding the disease Gridhrasi. So the prognosis given for Vata Vyadhies by Charaka Ch.Chi. – 28/71-72 may applicable for Gridhrasi. It may be said that Gridhrasi in which the vitiated Vata is seated in Majja Dhatu, and accompanied

with Angashosha and Stambha etc. can't be cured even after careful treatment. But if this condition occurs in a strong person, and disease is of recent origin and without any associated disease then it is curable.

Chikitsa Of Gridhrasi

Gridhrasi is one of the Nanatmaja Vatavyadhi. The general treatment of Vata Vyadhies can be applied……..

''हर्षतोदरूगायामशोथस्तम्भग्रहादयः। स्विन्नस्याशु प्रशाम्यन्ति मार्दवं चोपजायते।'' (चरक चिकित्सा 28/80)

''स्नेहश्च धातून्संशुष्कान् पुष्णात्याशु प्रयोजितः। बलमग्निबलं पुष्टिं प्राणांश्चाप्यभिवर्धयेत्।'' (चरक चिकित्सा 28/81)

Some Acharya have mentioned specific line of treatment for it.

Nidana Parivarjana

should be the first line to advice. Excess travel, bharavahana, vegasandharana, dhukha shayyasana are to be strictly avoided which may worsen the condition.

Snehana; Snehana or oleation therapy is used externally and internally in case of Gridhrasi. Externally snehana in the form abhyanga, pizichil, avagaha, pariseka etc.

External snehana may be given in the form of kati vasti, by using mahanaarayan oil, murrivena oil, prassarni tail, mahamasa tail etc. Sneha has Mrudu, Guru properties which are just opposite to those of Vata so it alleviates Vata. After pouring the oil within the boundaries made over the lumbar region. Infrared has a deep penetration power. local heat will increase the circulation by vasodilation in particular area and thus providing better nourishment and causes relaxation of muscle and tendon. It reduces the spasticity and rigidity and relive the pain.

Snehapana as Shamana and for Mridu Shodhana also indicated in texts.

Svedana; Avagaha Sveda, Pinda Sveda and Pizichil. Baluka Sveda i.e. a Ruksha Sveda can be used in Vatakaphaja As there is *vata* and *kapha prakopa* presenting with *stambha, graha, shoola, gaurava in kati pradesha* and in limbs*, swedana chikitsa* is best advised for *vata* and *kapha shamana*. *Sweda* relieves *stambha gaurava, shoola* because of its *ushnadi gunas.*

Basti; As Gridhrasi is mainly a Vataja Vyadhi, Basti is best treatment for Vata. Basti is indicated in almost all Vatavyadhies and especially indicated in the patients having disability, stiffness in extremities, pain in organs, constipation, loss of appetite, etc. Majority of these symptoms are present in the patient of Gridhrasi. Hence, Basti plays an important role in the management of Gridhrasi. Vataghna basti is planned like Dashamoola, Erandamoola, Balaamoola niruha basti. The kalka dravya should have vatahara, rasayana guna like Ashwagandha.

Siravedha; Acharya Charaka has indicated Siravedha between Kandara and Gulpha for the treatment of Gridhrasi. (Ch. Ch. – 28/101)

Acharya Sushruta and Vagbhata has indicated Siravedha at four angulas above or four angulas below the knee joint in Gridhrasi.[6]

Agni Karma; Almost all the Acharyas have indicated Agni Karma in Gridhrasi. Acharya Charaka has indicated Agni Karma to done at the site between Kandara and Gulpha. (Ch. Ch. – 28/101)

Acharya Sushruta and Acharya Vagbhata indicated Agni Karma in Snayu and Sandhigata VataVyadhi.

Gridhrasi is a Snayu gata Vata Vyadhi hence, here it is indirectly indicated. (Su. Su. – 12/10, Su. Chi. 4/8, A.H. Chi. – 21/22)

Regarding the site of Agni karma it is indicated that it should be done at posterior side of the leg at four angulas below the *Indra Basti Marma.* According to the Chakradatta it is between the small and little toe of affected leg.

Shamana; In Shamana therapies, Pachana and Deepana can only act in Gridhrasi.

Maharasnadi Kwatha, Rasnasaptakakwatha, Eranda tail, Punarnava guggulu, Sahacharadi Kwatha, Shephalika Kwatha, Narsimha Churna, Guggulu tikta Ghrita, Balataila, Dhanvantri taila, Yograj Guggulu, Amrit guggulu, Lasunapak etc. Balarishta, Vatavidhvansa rasa, Brihatvatachintamani rasa are also indicated for the management of Gridhrasi.

Pathyapathya ; Gridhrasi being Vatavyadhi the following diet is suggested – Snigadha, Usna, Abhyanga, Mardana, Bhusayya, Snana Asanana, Swadu, Amla, Lavanarasa, Navnita, Godhuma, Draksha, Dugdha are pathya. Whereas Tikshna, Sheeta, Kshara, Katu and Vatakaraka diets should not be given to Gridhrasi patients. Chinta, Vegadharana, Prajagrana, Sharma, Anasana, Vyavaya are also apathya in Gridhrasi.

Yoga; Bharadvajasana,Bhujangasana,AdhomukhSavasana,agnistambhasana.

Conclusion

Here we draw the conclusion that whatsoever may be disease or the condition of the patient Ayurveda is such a unique modality of treatment that starts treating the cause of the disease from very root level of the ailment. Also not just depending upon the fact of treating the symptoms like pain as this disease possess it do go for treating the disease as well as preventing it by not occurring again with the help of pathya apathya, yoga and nidana parivarjana.

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