Endometriosis, role of surgical treatment in restoring female fertility in AL-Nasiriya city

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ABSTRACT

Endometriosis is a hormonal and immune system disease in which cells similar to that which line the uterus (endometrium) grow outside the uterine cavity, most commonly on the membrane which lines the abdominal cavity, the peritoneum. The uterine cavity is lined with endometrial cells, which are under the influence of female hormones. Endometrial cells in areas outside the uterus are also influenced by hormonal changes and respond in a way that is similar to the cells found inside the uterus. Common symptoms of endometriosis are pain and infertility. The pain often is worse with the menstrual cycle and is the most common cause of secondary dysmenorrhea.Endometriosis is typically diagnosed during the reproductive years, but has been diagnosed in girls as young as 8 and has been found to continue past menopause, it has been estimated that endometriosis occurs in roughly 4–10% of women.[1] Symptoms may depend on the site of active endometriosis. Its main but not universal symptom is pelvic pain in various manifestations. There is an established association betweene.endometriosis and infertility.[1] Endometriosis has a significant social and psychological impact.[2]There is no cure for endometriosis, but it can be treated in a variety of ways, including pain medication, hormonal treatments, and surgery.[3]This study was done on 76 infertile females more than 5 years , general seminal analysis of those females partners were normal (active form of sperms are more than 50% with good number of sperms , high percentage of normal morphology of sperms in general seminal analysis) examination of those females genital tracts and sex hormonal assay with prolactin hormone all normal except the endometriosis of the wall of uterus with the parietal peritoneum and posterior layer of anterior abdominal wall one year(feberury2011-feberury2012) spend for collection of data and other 2 years(feberary2012-feberury 2014) for fallow up the patients for pregnancy . age of patients range between 28—38 years , 13.2% of patients had previous caesarian section.We get from this study 63.1% were get pregnant after the surgical treatments of endometriosis within 2 years post operatively. 37.5% were pregnant at first 6 months post operative , 29.2% at 2nd 6 months after operation and 33.3 at the 2nd year after operation .

Key word: endometriosis , surgical treatment, fertility.

Aim of study: to know the role of surgical treatment of endometriosis in restoring female fertility.

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introduction

Endometriosis is a hormonal and immune system disease in which cells similar to that which line the uterus (endometrium) grow outside the uterine cavity, most commonly on the membrane which lines the abdominal cavity, the peritoneum. The uterine cavity is lined with endometrial cells, which are under the influence of female hormones. Endometrial cells in areas outside the uterus are also influenced by hormonal changes and respond in a way that is similar to the cells found inside the uterus. Common symptoms of endometriosis are pain and infertility. The pain often is worse with the menstrual cycle and is the most common cause of secondarydysmenorrhea.[4]

Endometriosis is typically diagnosed during the reproductive years, but has been diagnosed in girls as young as 8 and has been found to continue past menopause; it has been estimated that endometriosis occurs in roughly 4–10% of women.[1] Symptoms may depend on the site of active endometriosis. Its main but not universal symptom is pelvic pain in various manifestations. There is an established association between endometriosis and infertility.[1] Endometriosis has a significant social and psychological impact.[2]There is no cure for endometriosis, but it can be treated in a variety of ways, including pain medication, hormonal treatments, and surgery.[3]The mechanisms by which endometriosis may cause infertility is not clearly understood, particularly when the extent of endometriosis is low.[2] Still possible mechanisms include:

- Anatomical distortions and adhesions (the fibrous bands that form between tissues and organs following recovery from an injury)
- The release of factors from endometriotic cysts which are detrimental to gametes or embryos. An endometriotic cyst contains free iron, reactive oxygen species, proteolytic enzymes and inflammatory molecules.[3] Follicular density in tissue surrounding the endometriotic cyst has been consistently shown to be significantly lower than in healthy ovaries, and to a degree that does not appear to be caused merely by the stretching of surrounding tissues owing to the presence of a cyst.[3].

Signs and symptoms:

Pelvic pain

A major symptom of endometriosis is recurring pelvic pain. The pain can range from mild to severe cramping or

stabbing pain that occurs on both sides of the pelvis, in the lower back and rectal area, and even down the legs. The amount of pain a woman feels correlates poorly with the extent or stage (1 through 4) of endometriosis, with some women having little or no pain despite having extensive endometriosis or endometriosis with scarring, while other women may have severe pain even though they have only a few small areas of endometriosis.[4] Symptoms of endometriosis-related pain may include:[5]

- dysmenorrhea – painful, sometimes disabling cramps during the menstrual period; pain may get worse over time (progressive pain), also lower back pains linked to the pelvis
- chronic pelvic pain – typically accompanied by lower back pain or abdominal pain
- dyspareunia – painful sex
- dysuria – urinary urgency, frequency, and sometimes painful voiding

Throbbing, gnawing, and dragging pain to the legs are reported more commonly by women with endometriosis.[6] Compared with women with superficial endometriosis, those with deep disease appear to be more likely to report shooting rectal pain and a sense of their insides being pulled down.[6] Individual pain areas and pain intensity appears to be unrelated to the surgical diagnosis, and the area of pain unrelated to area of endometriosis.[6]Endometriosis lesions react to hormonal stimulation and may "bleed" at the time of menstruation. The blood accumulates locally, causes swelling, and triggers inflammatory responses with the activation of cytokines. This process may cause pain. Pain can also occur from adhesions (internal scar tissue) binding internal organs to each other, causing organ dislocation. Fallopian tubes, ovaries, the uterus, the bowels, and the bladder can be bound together in ways that are painful on a daily basis, not just during menstrual periods.[7]Also, endometriotic lesions can develop their own nerve supply, thereby creating a direct and two-way interaction between lesions and the central nervous system, potentially producing a variety of individual differences in pain that can, in some women, become independent of the disease itself.[4]

Infertility

Many women with infertility may have endometriosis. Among women with endometriosis, up to 30% to 50% may experience infertility.[8]Other symptoms include diarrhea or constipation,[6] chronic fatigue,[9] nausea and vomiting, headaches, low-grade fevers, heavy and/or irregular periods, and hypoglycemia.[10]In addition to pain during menstruation, the

pain of endometriosis can occur at other times of the month.

There can be pain with ovulation, pain associated with adhesions, pain caused by inflammation in the pelvic cavity, pain during bowel movements and urination, during general bodily movement like exercise, pain from standing or walking, and pain with intercourse. But the most desperate pain is usually with menstruation and many women dread having their periods. Pain can also start a week before a menstrual period, during and even a week after a menstrual period, or it can be constant. The pain can be debilitating and the emotional stress can take a toll.[11]Current research has demonstrated an association between endometriosis and certain types of cancers, notably some types of ovarian cancer,[12][13] lymphoma and brain cancer.[14] Despite similarities in their name and location, endometriosis bears no relationship. Endometriosis often also coexists with leiomyoma or adenomyosis, but studies that look into similarities and differences between endometriosis and adenomyosis have conflicting results.[14] A 1988 survey conducted in the US found significantly more hypothyroidism, fibromyalgia, chronic fatigue syndrome, autoimmune diseases, allergies and asthma in women with endometriosis compared to the general population.[15]

Complications

Complications of endometriosis include internal scarring, adhesions, pelvic cysts, chocolate cyst of ovaries, ruptured cysts, and bowel and ureteral obstruction resulting from pelvic adhesions.[16] Endometriosis-associated infertility can be related to scar formation and anatomical distortions due to the endometriosis.Ovarian endometriosis may complicate pregnancy by decidualization, abscess and/or rupture.[19]Pleural implantations are associated with recurrent right pneumothoraxes at times of a menstrual period, termed catamenial pneumothorax.[17]

Risk factors:

Genetics

Genetic predisposition plays a role in endometriosis.[18] Daughters or sisters of women with endometriosis are at higher risk of developing endometriosis themselves; low progesterone levels may be genetic, and may contribute to a hormone imbalance.[19] There is an about 6-fold increased incidence in women with an affected first-degree relative.[20]

Aging

Aging brings with it many effects that may reduce fertility. Depletion over time of ovarian follicles affects menstrual regularity. Endometriosis has more time to produce scarring of the ovary and tubes so they cannot move freely or it can even replace ovarian follicular tissue if ovarian endometriosis persists and grows. Leiomyomata (fibroids) can slowly grow and start causing endometrial bleeding that disrupts implantation sites or distorts the endometrial cavity which affects carrying a pregnancy in the very early stages. Abdominal adhesions from other intraabdominal surgery, or ruptured ovarian cysts can also affect tubal motility needed to sweep the ovary and gather an ovulated follicle (egg).Incidences of endometriosis have occurred in postmenopausal women,[21] and in less common cases, girls may have endometriosis symptoms before they even reach menarche.[22][23]

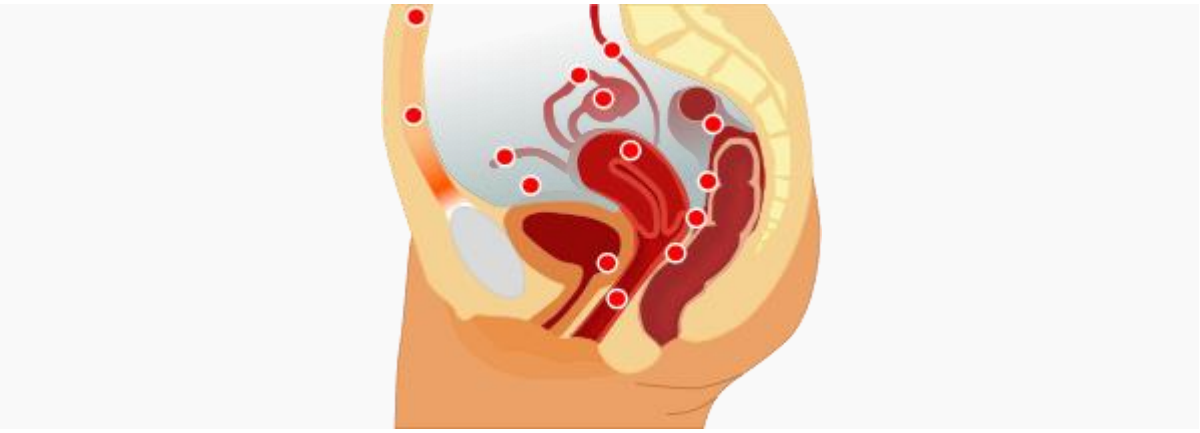
Retrograde menstruation

The theory of retrograde menstruation (also called the implantation theory or transplantation theory)[24] is the most widely accepted theory for the formation of ectopic endometrium in endometriosis.[25] It suggests that

during a woman's menstrual flow, some of the endometrial debris exits the uterus through the fallopian tubes and attaches itself to the peritoneal surface (the lining of the abdominal cavity) where it can proceed to invade the tissue as endometriosis.[26]

While most women may have some retrograde menstrual flow, typically their immune system is able to clear the debris and prevent implantation and growth of cells from this occurrence. However, in some women, endometrial tissue transplanted by retrograde menstruation may be able to implant and establish itself as endometriosis. Factors that might cause the tissue to grow in some women but not in others need to be studied, and some of the possible causes below may provide some explanation, e.g., hereditary factors, toxins, or a compromised immune system. It can be argued that the uninterrupted occurrence of regular menstruation month after month for decades is a modern phenomenon, as in the past women had more frequent menstrual rest due to pregnancy and lactation.[27]

Localization



possible locations of endometriosis

Most endometriosis is found on these structures in the pelvic cavity: [27]

- Ovaries (the most common site)
- Fallopian tubes
- The back of the uterus and the posterior cul-de-sac
- The front of the uterus and the anterior cul-de-sac
- Uterine ligaments such as the broad or round ligament of the uterus
- Pelvic and back wall
- Intestines, most commonly the rectosigmoid
- Urinary bladder and ureters

Rectovaginal or bowel endometriosis affects approximately 5-12% of women with endometriosis, and can cause severe pain with bowel movements.[28]Endometriosis may spread to the cervix and vagina or to sites of a surgical abdominal incision, known as "scar endometriosis."[29] Risk factors for scar endometriosis include previous abdominal surgeries, such as a hysterotomy or cesarean section, or ectopic pregnancies, salpingostomy puerperal sterilization, laparoscopy, amniocentesis, appendectomy, episiotomy, vaginal hysterectomies, and hernia repair. [30]

Endometriosis may also present with skin lesions in cutaneous endometriosis.

Diagnosis

A health history and a physical examination can lead the health care practitioner to suspect endometriosis. Use of pelvic ultrasound may identify large endometriotic cysts (such as endometrioma). However, smaller

endometriosis implants cannot be visualized with ultrasound technique.

Laparoscopy, a surgical procedure where a camera is used to look inside the abdominal cavity, is the only way to officially diagnose endometriosis as it permits lesion visualization, unless the lesion is visible externally, e.g. an endometriotic nodule in the vagina. If the growths are not visible, a biopsy may be taken to determine the diagnosis.[31] Surgery for diagnosis also allows for surgical treatment of endometriosis at the same time.[32]

Although doctors can often feel the endometrial growths during a pelvic exam, and these symptoms may be signs of endometriosis, diagnosis cannot be confirmed by exam only. To the eye, lesions can appear dark blue, powder-burn black, red, white, yellow, brown or non-pigmented. Lesions vary in size. Some within the pelvis walls may not be visible, as normal-appearing peritoneum of infertile women reveals endometriosis on biopsy in 6–13% of cases.[33] Early endometriosis typically occurs on

the surfaces of organs in the pelvic and intra-abdominal areas. Health care providers may call areas of endometriosis by different names, such as implants, lesions, or nodules. Larger lesions may be seen within the ovaries as ovarian endometriomas or "chocolate cysts", "chocolate" because they contain a thick brownish fluid, mostly old blood.Frequently during diagnostic laparoscopy, no lesions are found in women with chronic pelvic pain, a symptom common to other disorders including adenomyosis, pelvic adhesions, pelvic inflammatory disease, congenital anomalies of the reproductive tract, and ovarian or tubal masses.[34] In order to avoid invasive diagnosis and potentially life-threatening complications of laparoscopy, the response to hormonal agonists such as Lupron has been advocated as a possible method for diagnosing endometriosis, under the premise that if the chronic pelvic pain was reduced or relieved with Lupron, the diagnosis would be established.[35] However, a randomized controlled trial investigating pain relief in response to Lupron administration found that pain relief was not significantly different in women who did or did not have endometriosis as detected by laparoscopy.[36] Thus, response to Lupron is currently not an accurate diagnostic method for detecting endometriosis, and the only definitive measure for diagnosis is laparoscopy.

Staging

Surgically, endometriosis can be staged I–IV (Revised Classification of the American Society of Reproductive Medicine).[37] The process is a complex point system that assesses lesions and adhesions in the pelvic organs, but it is

important to note staging assesses physical disease only, not the level of pain or infertility. A person with Stage I endometriosis may have little disease and severe pain, while a person with Stage IV endometriosis may have severe disease and no pain or vice versa. In principle the various stages show these findings:

Stage I (Minimal)
Findings restricted to only superficial lesions and possibly a few filmy adhesions

Stage II (Mild)
In addition, some deep lesions are present in the cul-de-sac

Stage III (Moderate)As above, plus presence of endometriomas on the ovary and more adhesions.

Stage IV (Severe)As above, plus large endometriomas, extensive adhesions.

Endometrioma on the ovary of any significant size (Approx. 2 cm +) must be removed surgically because hormonal treatment alone will not remove the full endometrioma cyst, which can progress to acute pain from the rupturing of the cyst and internal bleeding. Endometrioma is sometimes misdiagnosed as ovarian cysts.[38]

Surgical managements

Conservative treatment consists of the excision (called cystectomy) of the endometrium, adhesions,
resection of endometriomas, and restoration of normal pelvic anatomy as much as is possible.[39]Laparoscopy, besides being used for diagnosis, can also be used to perform surgery. It's

considered a "minimally invasive" surgery because the surgeon makes very small openings (incisions) at (or around) the belly button and lower portion of the belly. A thin telescope-like instrument (the laparoscope) is placed into one incision, which allows the doctor to look for endometriosis using a small camera attached to the laparoscope. Small instruments are inserted through the incisions to remove the endometriosis tissue and adhesions. Because the incisions are very small, there will only be small scars on the skin after the procedure, and all endometriosis can be removed, and women recover from surgery quicker and have a lower risk of adhesions.[40] 55% to 100% of women develop adhesions following pelvic surgery, which can result in infertility, chronic abdominal and pelvic pain, and difficult reoperative surgery. Trehan's temporary ovarian suspension, a technique in which the ovaries are suspended for a week after surgery may be used to reduce the incidence of adhesions after endometriosis surgery.[41]Conservative treatment involves excision of endometriosis while preserving the ovaries and uterus, very important for women wishing to conceive, but may increase the risk of recurrence.[42]Endometriosis recurrence following conservative

surgery is estimated as 21.5% at 2 years and 40-50% at 5 years.[43]

A hysterectomy (removal of the uterus) can be used to treat endometriosis in women who do not wish to conceive. However, this should only be done when combined with removal of the endometriosis by excision, as if endometriosis is not also removed at the time of hysterectomy, pain may still persist. For women with extreme pain, a presacral neurectomy may be very rarely performed where the nerves to the uterus are cut. However, this technique is almost never used due to the high incidence of associated complications including presacral hematoma and irreversible problems with urination and constipation.[44]

Treatment of infertility

In case of infertility in a woman with endometriosis, surgery is more effective than medicinal intervention. For this purpose, surgery attempts to remove endometrial tissue and preserving the ovaries without damaging normal tissue. In addition, in-vitro fertilization (IVF) procedures are effective in improving fertility in many women with endometriosis.[45]

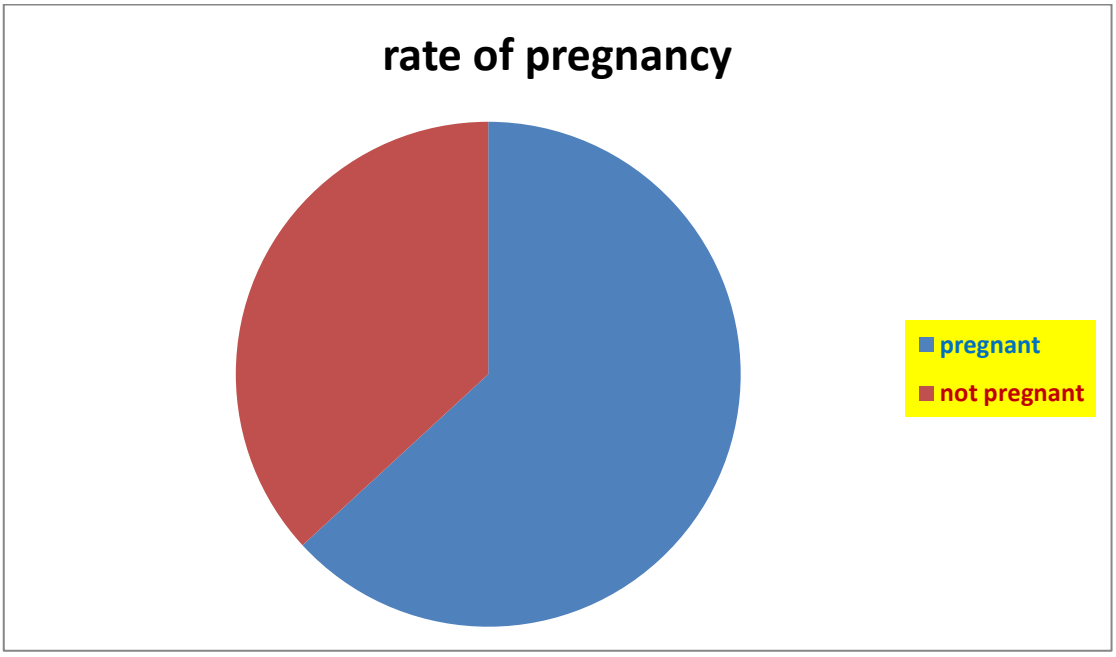
Patients and methods

This study was done on 76 patients through 3 years(2011-2014) , one year collection of data and other 2 years for fallow up. We diagnose those patient as a primary or secondary infertility after searching for the causes by history , clinical examination and different methods of investigation we diagnose due to endometriosis of uterus or ovary and or fallopian tube, main investigations used are pelvic ultrasound vaginal u/s hysteroscopy, hysterosalpengography , MRI of pelvis in addition to the routine general investigations pre operatively in addition to the general seminal analysis of the husband , till we reach the diagnosis of endometriosis is the cause of infertility , we start with those a medical treatments for a 6 months(as a hormonal therapy) ,failed to achieve pregnancy so we start with surgical treatment or few patients prefer the surgical treatment directly. we take an informed concept from the patients after we explain why , when , who we do the operation , the intra operative and post operative complications that may occur, we did laparoscopy and in few cases(in which laparoscopic approach is difficult or contraindicated) lower mid line incision , start to remove the endometriosis gently from the uterus , ovary if present and from the fallopian tube ,release the tube from any adhesion as the ovary with simple curettage to the uterus to refreshment the endomaterium epithelium, then

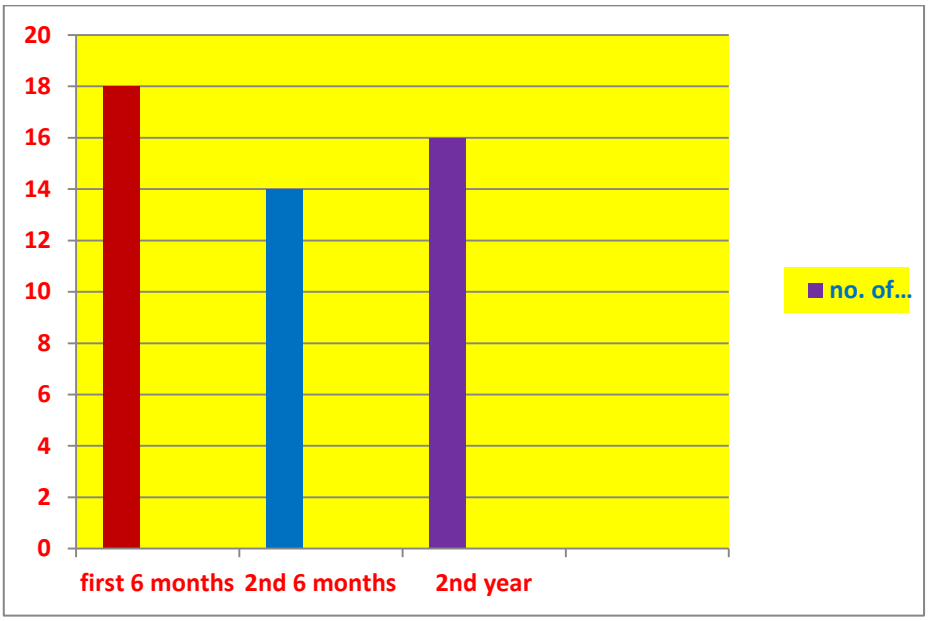
we star to fallow those patients for 2 years post operatively for pregnancy.

Results

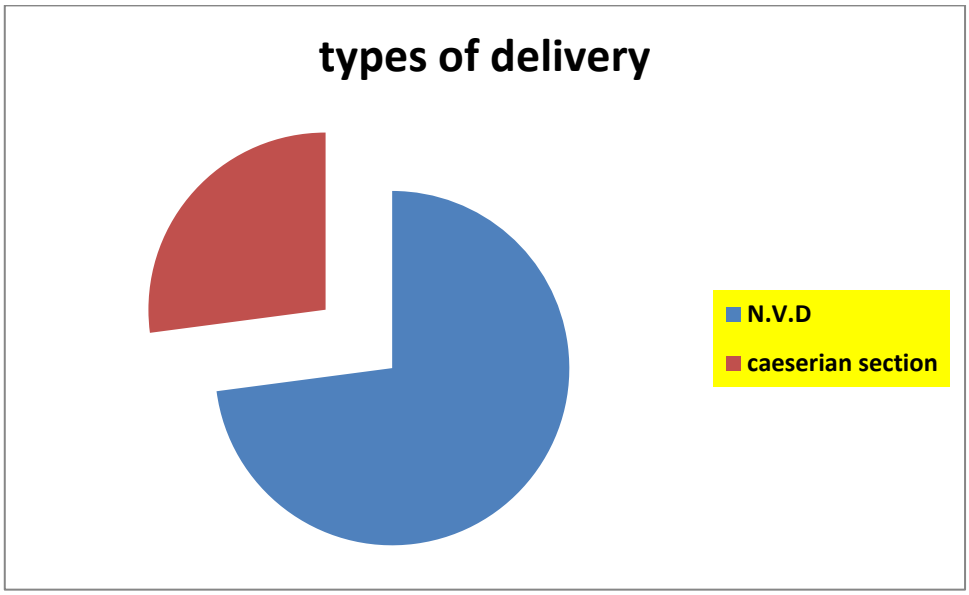
From our study on those 76 patients for 2 years fallow up post operatively we got 48 patients (63.1%) were becomes pregnant through this 2 years, 18 patients (37.5%) from those 48 patients got pregnant within the first 6 months while 14 patients (29.2%) were got pregnant at 2nd 6 months , 16 patients (33.3%) became pregnant at the 2nd post operative year. 8 patient from those 48 pregnant (16.6%) were got abortion at first trimester but with 2nd pregnancy have a normal pregnancy . 13 patients from those 48 (27%) were delivered by cesareans section , others by normal vaginal delivery with episiotomy most of the patients.



paragraph1: rate of pregnancy after surgical treatments



Paragraph II: No.of patients who get pregnancy in relation to the time post operatively.



Paragraph III: Types of delivery

Discussion

Endometriosis is one of causes of infertility in females especially if the disease involve the ovary and or fallopian tube or the uterus , infertility either because of adhesive band that formed by the disease or due to interfere with normal passage of sperms and or the ovum and interfere with ovum fertilization so surgical treatment with gentle releasing of ovary , fallopian tube, releasing any band , cleaning of uterus from the disease will help to restore the fertility to the females . about 63% of cases will got pregnant with in 2 years from operation regards a good result to restore the female fertility. This also confirm that

the endometriosis represent one of important factors of infertility in females.

Conclusion

From our study we found that the endometriosis is one causes of infertility of females , surgical treatments will help those females to restore there fertility in a high percentage about 63% . so from this results we prefer to treat the endometriosis of the ovary, fallopian tube and or endometriosis of uterus surgically as a first line of treatments even before medical treatments as a hormonal therapy , so start as a surgical treatments and can we add a medical treatments post operatively as adjuvant therapy.

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