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RESEARCH ARTICLE

Narrow Vaginal Introitus, An Unnoticed Cause of Unexplained Infertility in Women of Indian Subcontinent

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ABSTRACT

Objective: Unexplained Infertility (UI) is a diagnosis of exclusion. Main problem is to find a treatment plan. Nowadays Assisted reproductive technology (ART) procedures are undertaken in large number of them. A careful history taking and meaningful clinical examination may reveal few unnoticed causes of UI. One of them being narrow vaginal introitus. This is quite prevalent in women of Indian subcontinent as they start their sexual life mostly after marriage in later part of life as compared to western women who practice conjugal life since their teens. Due to narrow introitus deposition of semen in vagina is suboptimal and large proportion of it spills out. This remain unnoticed or undetected till leading enquiries are made. In this article this problem and its solutions are addressed

Material and Methods: In a period of 4years 3700 new cases of Primary infertility attending a single centre were studied. Amongst them 530 cases (14%) of UI were identified as per ESHRE criteria. They had watchful expectancy for minimum of two years for spontaneous conception. Some of them had some empirical treatment or even attempt of IVF with no results. Careful history taking in relaxed mood and meaningful clinical examination were undertaken in them. Thereafter corrective procedures and exercises were advocated as detailed in the text.

Results: Women were classified in three groups according to age. Groups A 20 to 30, B 31 to 35 & C 36 to 42. Pregnancy rate was maximum in younger age group A 33.8% intermediate in age group B 19.8%. In both the groups similar pregnancy rates were observed in first six months which were spontaneous and subsequent six months with ovulation induction. In advanced age group C pregnancy rate was much less (11.29%). Spontaneous pregnancy after correction of the problem were less than pregnancy following ovulation stimulation.

Conclusion: Narrow vaginal introitus causes difficulty in sexual intercourse and dissatisfaction in women. This subsequently leads to unexplained infertility in around 20% of the couples. Even after being treated with adequate medications these patients fail to conceive due to improper sexual contact. Manual stretching of the vaginal introitus by the treating doctor or the patient herself can have a solution to this problem.

Keywords: Narrow introitus, difficult intercourse, manual stretching, Unexplained infertility

Introduction

Evaluation of infertile couple is of immense importance before planning a fertility promotional treatment. The information regarding entry and retention of semen in female genital tract is mostly overlooked or escapes attention. A narrow vaginal introitus may lead to painful intercourse or improper semen deposition in the vagina which may lead to failure to conceive and may be diagnosed as unexplained infertility (UI), the incidence being about 15 to 30 percent among all infertile couples, also referred to as idiopathic infertility[1]. *There is no consensus about standard infertility testing*." Testing can vary according to the individual's situation and their physician's testing protocols[2]. Most common causes of infertility are ovulatory dysfunction (25%), malefactor infertility (35%), and tubal dysfunction (11-67%). The rest of 15% of couples have "unexplained infertility"[3-6]. According to the ESHRE guidelines, necessary tests for UI are*semen analysis, assessment of ovulation and the luteal phase, and assessment of tubal patency by hysterosalpingogram or laparoscopy*[7]. However, there are controversial opinions about the value of endometrial biopsy, ovarian reserve tests (AMH, AFC), post-coital test and serum prolactin levels[8]. Infertility has a much higher probability of remaining unexplained if infertility investigations are only superficial. The probability of a diagnosis of unexplained infertility will shrink with increasing searches for less frequent causes.

Assessment of sperm entry to the uterus is one of the important factors causing UI in women of Indian subcontinent. So far sperm entry to the uterine cavity is concerned a major problem happens with narrow or tight vaginal introitus particularly in women of the Indian subcontinent. Women here, in large numbers don't become sexually active before marriage in contrast to western world where it happens since teenage. In many of these women trying to conceive, no other cause of infertility is found when they are not examined carefully clinically and diagnosed as UI. Due to narrow introitus intercourse remains painful. Male partner's penis hits anterior wall of vagina, thereby irritates trigone of urinary bladder & female partner suffers from urinary sensation & if she has to run to toilet for this immediately after intercourse, semen coagulum spills out immediately from vagina. Semen may come out from narrow introitus early as it is not deposited in posterior fornix. Asking a leading question to the couple this may be revealed. With wide introitus male organ goes in the posterior direction during intercourse when both clitoris and post fornix get rubbed and stimulated leading to orgasm. Semen gets liquefied after being stored there for a maximum of half an hour in normal cases. The sperm cells thereafter swim to get entry to the uterine cavity & fallopian tubes in a maximum of one & half hour to fertilize the egg.

Post coital test (PCT) is not considered to be useful in predicting fertility. In a study adding intra uterine aspirate (IUA) study along with PCT has been found to be useful to predict sperm entry to the uterine cavity, thereby determining the utility of intrauterine insemination (IUI).If spontaneous sperm entry is good, IUI does not produce a good success rate; in contrary a poor PCT-IUA predicts a good IUI outcome[9,10]

Material & Methods

Between January 2021 till Dec 2024 3700 new cases of Primary infertility attended Calcutta Fertility Mission, a dedicated centre for treating infertile women. Amongst them 530 cases (14%) of UI were identified considering ESHRE criteria. About two-thirds of them (no 320) were diagnosed elsewhere and rest of them in this centre. 475 cases of UI had standard treatment of expectant treatment followed by IUI after ovarian stimulation. Some of them had IVF failure and most of them did not accept IVF.

INCLUSION CRITERIA
Women aged 20 to 42 yrs with primary infertility who have been diagnosed to have UI and tried for pregnancy for at least 2 years for spontaneous conception.

EXCLUSION CRITERIA
Couples with incomplete investigations and who after being diagnosed as UI have not tried for spontaneous conception for at least 2yrs.

These 530 cases of UI were classified in three groups as per age in yearsA) 20-30B) 31 –35 C) 36–42. 133 women belonged to Group A, 209 cases fell in Group B and 186 women were in Group C.

These couples were interviewed with caution and compassion by a senior fertility physician. Personal questions like any superficial dyspareunia, urinary sensation during intercourse, enjoyment and orgasm, spill of semen immediately after male organ is pulled out are to be placed very carefully. This should be followed by careful clinical examination. The vaginal introitus may feel tight while performing transvaginal ultrasound scan (TVS) or digital vaginal examination (VE). Before such examinations the couple, the female partner in particular, should be explained about whole procedure, should be reassured and written consent obtained. Asking leading questions, it is revealed in such cases that the penis hits under urinary bladder trigone through anterior vaginal wall. It does not go towards posterior vaginal fornix. This will lead to poor sexual enjoyment and spilling of good amount of semen outside the vagina.

These women can be counselled for stretching of vaginal introitus initially done by physician and subsequently maintained the lady herself. It takes between one to four sitting in the clinic in between self-dilatation. The problem resolves within couple of months. In extreme cases operations like Fenton's may be necessary. In the clinic we press the superficial perineal muscles with two fingers those used for VE and perform perineal massage as done while conducting vaginal[11]. Self-dilatation is nothing but pressing the posterior introital opening (Posterior fourchette) towards rectum or anus which can be performed immediately after micturating. A self-retaining posterior vaginal speculum similar in function of single blade Sim's speculum but with attached weight in its vertical handle is being designed to promote stretching of posterior part of vaginal opening.

Results

With this simple treatment pregnancy outcome was calculated within 6months and after ovulation stimulation

with oral ovulogens in subsequent 6 months (total one year). The results are indicated in Table 1,

Table 1

Category	Group A(%)	Group B(%)	Group C(%)	Total(%)
Cases	133(25.09)	209(39.4)	186 (35.09)	530 (100)
Pregnancy (total)	45(33.8)	40(19.13)	21(11.29)	106(20)
Pregnancy Within 6 months	21	19	06	56
Pregnancy Within next 6 months	24	21	15	50

STATISTICAL ANALYSIS

This has not been undertaken as it is a newer finding and results are presented in straight forward way. These are not compared with any other findings or results.

RESULT ANALYSIS

Out of 3370 new primary infertility cases enrolled in a single center over a period of 4 years 12% cases were UI. With simple correction of vaginal introital narrowing total 20% cases conceived within one year of treatment. 33.8% women belonging to age group of 20 to 30 years (Group A) conceived during above period almost half within 1st 6 months and rest within next 6 months. 19.13% of Group B (age between 31 to 35 years) conceived during same period. Half of them in 1st 6 months spontaneously and remaining in next 6 months with ovulation support. 11.29% women belonging to elderly age Group C (36 to 42 years) became pregnant during same period but about 28% in 1st 6 months spontaneously and 72% in next 6 months who needed more ovulatory support. Pregnancy rate was maximum in younger age group for obvious reasons. These pregnancy outcomes were possible because of proper deposition of semen in the vagina.

Discussion

Infertility due to vaginal introital narrowing is probably unbelievable in western world but incidence being about 20% among all UI cases amongst women of Indian subcontinent. Improper deposition of semen in the vagina is the principal factor for the same. In advanced age good number of sperm available in the posterior fornix of vagina for a certain period of time leads to success in achieving a spontaneous pregnancy. Women with narrow introitus has poor sexual satisfaction and are often not achieving orgasm and the posterior fourchette being taught and poor elasticity, there is difficulty in the intercourse[12]. Studies have shown that increased penile-clitoral contact during sexual intercourse or increased penile stimulation of internal aspects of the clitoris, lead to female orgasm. Due to introital narrowing, penis hits under urinary bladder trigone through anterior vaginal wall and it does not go towards posterior vaginal fornix, which leads to discomfort[13].Moreover, they have increased urinary sensation during intercourse which compels them to run to washroom leading to spill of semen from vagina in addition to spontaneous leakage of semen immediately following intercourse. With simple manual stretching of vaginal introitus (posterior fourchette) either performed by physician or by female partner herself done on a regular basis for a short period can lead to relaxation of the aforesaid part. This leads to easy intercourse when semen is deposited in posterior fornix of vaginawhich can hold the semen coagulum for long. Semen gets liquefied there spontaneously due to its enzymatic content. This helps in spontaneous conception in about 20% of patients complaining of UI. Pregnancy rate is more in younger age group even without any medication. Ovulation stimulation helps elderly women to resolve such a problem. It is observed that similar pregnancy rate occurs in initial 6months and subsequent 6 months in women of 20 to 30 years (Group A) and 31 to 35years (Group B) age. In advanced age group (36 to 42 years Group C) ovulation stimulation led to more pregnancy rate as compared to women having spontaneous ovulation. This may be due to suboptimal egg quality which requires correction by ovulogens[14].

Conclusion

Managing UI requires extreme skill. Narrowing of vaginal introitus often remains undiagnosed due to improper clinical examination particularly in a busy clinic and in the era of IVF which is often performed in UI cases. Practical experience is that few women conceived even after single vaginal stretching. Careful history taking, proper explanation of the problem along with procedures to be performed and careful counselling lead to proper diagnosis as well as solution of one often unnoticed causeof UI.

No Conflict of Interest:

There is no conflict of interest of any of the authors. All have equal contributions.

Approval:

Approved by ethical committee of the institute. Funded by institute itself.

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