



A rigid hymen in a patient with primary infertility: A case report

Eyong Edu M¹, Eyong Michael E², Upua Christopher A³

¹Department of Obstetrics and Gynaecology, University of Calabar, Calabar, Nigeria

²Department of Paediatrics, University of Calabar, Calabar, Nigeria

³Department of Obstetrics and Gynaecology, University of Calabar Teaching Hospital, Calabar, Nigeria.

Abstract

Infertility is a cause for global concern and is associated with several negative impacts on the couple, especially the female partner.

This case report describes a 40 year old lady who presented with inability to conceive for 7 years, severe pains during sexual intercourse and cessation of menses for 3 years' duration. A diagnosis of primary infertility, rigid hymen and premature ovarian insufficiency was made. The couple subsequently achieved successful painless deep vaginal penetration after regular counseling/psychotherapy sessions for 7 months. However, the couple are yet to adopt a treatment option for premature ovarian insufficiency.

Key words: Primary infertility, primary ovarian insufficiency, rigid hymen, semen analysis, hormonal profile, invitro fertilization (IVF).

Introduction

Infertility refers to the failure of a couple to achieve a pregnancy after twelve months or more of regular, unprotected sexual intercourse.¹⁻³ It is estimated that between 48 million couples and 186 million individuals live with infertility globally.⁴ Estimates also show that 1 in 6 people (about 17.5% of the adult population) live with infertility globally.⁵

Infertility could be either primary or secondary. Primary infertility is said to occur when a couple have never achieved pregnancy, while secondary infertility occurs when the woman had previously achieved a pregnancy (despite the duration or outcome of the pregnancy).^{5,6}

In females, causes of infertility can be diagnosed by history, clinical examination, pelvic ultrasound scan, hormonal profile assessment, hysterosalpingography, hysteroscopy, laparoscopy etc.

In males, the cause of infertility can be diagnosed by history, clinical examination, semen analysis, hormonal test, scrotal ultrasound scan etc

Some of the causes of female infertility include abnormal uterine structure/function (such as bicornuate/unicornuate/ septate uterus, uterine adhesion), tubal blockage, ovarian dysfunction (such as polycystic ovarian syndrome) and genetic abnormalities (like Turner syndrome).^{4,7}

In males, some of the causes of infertility include testicular/ejaculatory dysfunction, genetic disorders (such as Klinefelter's and fragile X syndrome), infections (mumps orchitis, sexually transmitted infections) and damage from cancer treatment (chemotherapy, radiation therapy).^{4,7}

The hymen is a piece of mucosal tissue that partially or completely covers the vaginal opening. It is

Corresponding Author:

Eyong Michael E
University of Calabar, Calabar, Nigeria

meyong2000@gmail.com

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formed during foetal development and is present at birth, forming part of the vulva. It has no essential long-term biological purpose but may serve as a minor physical barrier with immunological benefits in childhood.⁸ In many cultures, it is significantly associated with virginity when present.^{8,9} Thus, it is

seen as an indicator of sexual activity having occurred when it is absent.^{8,9}

The hymen could be “ruptured” or “torn away” during the first penetrative sexual intercourse but sometimes requires repeated sexual penetration to be “broken” or “torn”^{8,9}. This usually results in pelvic pain and spotting or mild, temporary vaginal bleeding. The hymen could also be torn during other activities such as horse/bike riding, tampon insertion, masturbation, gymnastics or other strenuous physical activities.^{8,9}

There are different types of hymen including annular, septate, crescentic, cribriform, fimbriated, micro-perforated and imperforate hymen^{8,10-11}. An imperforate hymen completely covers the vaginal opening while all other types partially cover it in varying proportions.^{8,10-11} The imperforate hymen prevents the egress of menstrual blood (after puberty and menarche have been attained). An imperforate hymen usually requires medical intervention in order to allow the release of menstrual blood while other types of hymen usually do not require any form of medical intervention.^{8,10-11}

We report a rare case of primary infertility in a lady who had an intact rigid hymen which resulted in the inability to achieve vaginal penetration during seven years of marriage.

Case report

A 40 year old lady was referred from a private health facility due to failure to achieve pregnancy after seven years. She also complained of severe pelvic pains during sexual intercourse for seven years and absence of menses for three years.

The lady had not engaged in sexual intercourse with anybody until she got married seven years (7) before presentation. She had attained menarche at 15 years and used to menstruate for 5-6 days in a regular 28 - 30 menstrual cycle. There was no history of dysmenorrhea, menorrhagia or abnormal vaginal discharge till her menses ceased spontaneously 3 years prior to presentation.

She was a petty trader, did not drink alcohol nor use tobacco or recreational drugs. She had no neck swelling and no history of galactorrhoea. There was no history of chronic medical illness or previous surgery. She was married to a 40 year old commercial bus driver who drank alcohol occasionally but did not use tobacco or recreational

drugs. He also had no history of chronic medical illness or previous surgery. Both the patient and her husband had tertiary level of education.

The patient and her husband had been married for 7 years. Soon after marriage, they attempted to have sexual intercourse but the lady experienced severe pelvic pains during attempts at vaginal penetration. The pain was reported to be very sharp and distressful causing her to sob. Her husband tried achieving vaginal penetration many times over a period of 7 years but each attempt was associated with severe, sharp pelvic pains. Due to the persistent severe pelvic pains, their frequency of sexual intercourse reduced significantly to an average of once every 2 to 3 months during which there was no confirmation of successful ejaculation into the vagina. The patient intermittently took herbal and “over-the-counter” medications during the seven years which did not alleviate the problem.

There was no history of prior medical consultation and the patient also developed amenorrhoea three years prior to presentation. Subsequently, the patient and her husband were advised by a close friend / neighbor to seek medical intervention for their complaints. The patient’s husband had been sexually active (with previous partners) before they got married but he had no child outside their marriage.

On clinical examination, the lady was healthy looking with a body mass index (BMI) of 23Kg kg/m². There was no neck swelling and no galactorrhoea. General physical and abdominal examinations revealed no abnormality.

Vaginal examination revealed the presence of an intact hymen which was markedly tender on palpation. Speculum and digital examination were thus deferred. (See Figure 1). A diagnosis of intact rigid hymen was made after examination.

The patient’s husband was also reviewed. Clinical examination revealed a healthy looking man with no obvious abnormality. Examination of the genitals revealed no varicocele or any other obvious abnormality.

The patient and her husband were evaluated on outpatient basis. Her husband’s semen analysis was done after a 4- day period of sexual abstinence. The total sperm count was 17.7 million/ml (normal value is 15 million per ml or above), total motility was 50% (42% or greater); progressive motility was



Figure 1: Intact hymen

40% (42% or greater); normal morphology was 70% (4% or greater). The semen parameters were essentially normal according to the World Health Organization (WHO) criteria.¹²

The patient's full blood count and abdominopelvic ultrasound scan result were also essentially normal. Her hormonal profile result showed a follicle stimulating hormone (FSH) level elevated to 53.2miu/ml (1.5 -12miu/ml), luteinizing hormone level was also elevated to 32.9miu/ml (1.5 – 8miu/ml). Prolactin level was 14.0mg/ml (2.0 - 19.7mg/ml); Oestradiol level was 15pg/ml (2.0 – 350pg/ml) and Day 21 progesterone level was 2.3ng/ml (2.5 – 32ng/ml). The hormonal parameters revealed markedly elevated FSH and LH levels, normal Prolactin level and borderline low Oestradiol and Day 21 progesterone levels.

Before the patient's hormonal profile result was reviewed, she was treated with combined oral contraceptive pills and had achieved vaginal bleeding for 3 cycles while taking the pills. Thereafter, she did not achieve spontaneous menstruation.

The couple's investigation results were discussed with them. They were counseled on different treatment options including psychotherapy and hymenectomy as well as subsequent fertility options. They chose the treatment option of counseling/ psychotherapy. They were both

counseled on the need for both of them to consciously allay anxiety prior to subsequent attempts at sexual intercourse; as well as the need for elaborate foreplay by the husband before vaginal penetration. They were advised on the need for weekly attempts with the aim of achieving deep vaginal penetration without pain as soon as possible and the need to undergo a hymenectomy if the first treatment option (counseling/ psychological therapy) failed.

They were reviewed on a monthly basis and their progress noted. Subsequent review of the couple after five months revealed that the patient had significant reduction in severity of pelvic pain but deep vaginal penetration was still not achieved. Vaginal inspection revealed that the hymen was still present at the time. Thus, the couple were re-counselled to accept the option of hymenectomy, a minor surgical procedure which involves excision of the hymen to help the achievement of deep vaginal penetration without pain. However, the couple refused to consent to hymenectomy but decided to continue with the treatment option of counseling & psychological therapy, citing satisfaction with the progress they made so far. During subsequent review of the couple after 7 months, they reported that they had achieved deep vaginal penetration without pain. Vaginal examination also confirmed that the hymen was absent (See Figure 2).

The couple were subsequently re - counseled on the fertility options such as invitro fertilization (IVF) with ova donation, adoption and surrogacy due to the diagnosis of premature ovarian insufficiency.



Figure 2: Absent hymen

However, the couple are yet to consent to any of these options as at the time of this report.

Discussion

Infertility (both primary and secondary) can occur due to either female factors alone, male factors alone, a combination of male and female factors or unexplained factors. It is a global public health concern.^{7,13} Infertility is associated with several negative mental and psycho-social impacts in the lives of couples such as emotional stress, financial difficulty, social stigma, low self-esteem, intimate partner violence and divorce.^{7,13} These impacts have been reported to be greater on the female partners.^{14,15}

In the case under review, the couple presented with primary infertility, severe pelvic pains during attempted sexual intercourse and absence of menses. It is of great significance that the couple had not presented for medical intervention for 7 years until they were advised by a close friend/neighbour. They did not initially consider their problems to require hospital consultation, rather the patient was taking herbal medications and 'over-the-counter' drugs without any improvement in her condition. This shows very poor health seeking behavior and ignorance of the need for appropriate medical consultation on such a significant medical problem. Despite the fact that both the patient and her husband had tertiary level of education, they delayed seeking the appropriate medical intervention. During the seven year period of delay in seeking medical intervention, the patient menstruated during the first four years but subsequently developed amenorrhoea three years prior to presentation. Her hormonal profile revealed primary ovarian insufficiency following the age-related natural decrease in the quantity and quality of eggs in the ovaries. This significantly reduced the chances of conception which she and the husband greatly desired. Although current literature has suggested that most couples consider parenthood to be a central part of their life plan,^{16,17} there is a significant delay in many couples in seeking and sustaining medical consultation.¹⁶ This delay in seeking and sustaining medical intervention may be due to several factors such as ignorance, (perceived) cost of infertility treatment, emotional impact of infertility (anxiety/depression)

and physical/emotional impact of treatment (such as side effects of treatment and fear of failure to achieve conception and live birth following treatment).¹⁶ Such delay may negatively impact their chances of achieving pregnancy as was experienced by the patient in this report.

This is a report of a rare cause of primary infertility, an intact hymen in a lady who delayed accessing medical intervention for seven years for an easily treatable condition. During the period of delay, she underwent age-related progressive decline in ovarian reserve and function resulting in premature ovarian insufficiency. Early presentation would have been associated with a higher chance of achieving fertility after treatment; but the delay had a negative impact, necessitating the use of costly and third party assisted fertility options such as IVF with ovum donation, surrogacy and adoption. By its definition, infertility presupposes the engagement in regular, unprotected sexual intercourse which was not the case in this couple. The couple were unaware that the consistent severe pelvic pains experienced by the patient during sexual intercourse, meant that vaginal penetration had not been achieved and thus they could not achieve pregnancy.

The severe pelvic pain experienced by the lady was due to the presence of a rigid hymen. This severe superficial dyspareunia was associated with a cycle of increased anxiety and fear which resulted in more failed attempts. This subsequently led to reduced frequency of sexual intercourse by the couple.

A rigid hymen is said to be a variation of the hymen which is unusually inelastic and tight, creating a tight ring at the vaginal opening.¹⁸ This can make sexual intercourse very difficult/impossible because this type of hymen lacks the flexibility to stretch easily and be 'broken' or 'torn' during intercourse. It is also associated with significant pain during coitus creating a cycle of pain, tension and more pain.¹⁸ It can be managed by counseling/ psychotherapy which helps relieve vaginismus or the physiological factors. The use of vaginal lubrication can also be helpful. Where these measures do not give positive results, hymenectomy can be done.^{18,19} This usually gives a permanent solution to this problem because this minor surgical procedure involves excision of the hymen, leaving an appropriate vaginal opening which ensures achievement of sexual penetration

without pain.^{8,9,18-9}

The couple had been counseled on the different options of treatment including psychotherapy and hymenectomy. She did not give consent to hymenectomy but preferred counselling and psychotherapy which yielded progressive positive results. They achieved successful deep vaginal penetration without pains after 7 months.

However, pregnancy had still not been achieved due to additional diagnosis of premature ovarian insufficiency which she developed. Premature ovarian insufficiency is said to occur when there is spontaneous cessation of menstruation before 40 years and is associated with significant reduction of fertility although there is a small possibility of spontaneous resumption of ovarian function and natural conception.²⁰⁻²²

Karyotyping is usually done for women diagnosed with primary ovarian failure, especially those less than 35 years or those with primary amenorrhoea^{23,24}. It helps in the diagnosis of genetic conditions such as Turner syndrome and gene mutations. However, this investigation could not be done in this patient because it is not available in our local environment and is costly in distant diagnostic centres.

For women with premature ovarian insufficiency who desire to conceive, invitro fertilization (IVF) with donor eggs is often necessary. The other treatment options are surrogacy and adoption.^{21,22}

The couple were counseled on all above stated fertility treatment options but are yet to accept any of these fertility options at the time of this report.

Conclusion

Infertility is a cause for global concern because it affects millions of couples and individuals worldwide. It is associated with several negative impacts which usually affects the female partner more prominently.

This case report emphasizes the need for early presentation of patients for management of infertility to avoid the natural decline in reproductive potential with increased age. Delay in treatment can lead to the significant reduction in the chances of successful treatment; as well as necessitate the use of more costly and/ or third party assisted fertility options.

The management of the index patient for rigid hymen was successful because the couple achieved

successful deep vaginal penetration without pain. However, the couple were still being counseled to accept the available fertility options as at the time of this report.

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