CASE REPORT

USE OF AMNION IN VAGINOPLASTY FOR VAGINAL ATRESIA

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ABSTRACT

A 25 years old lady with vaginal atresia, secondary to a mismanaged spontaneous vaginal delivery, underwent vaginoplasty using human amnion. The amnion was kept in its place using a 60cc syringe as a mould. For the next three months, dilatation by soft mould was followed by regular intercourse. Alongwith the restoration of normal coital function, she also conceived and was delivered by planned caesarean section at 38 weeks.

KEY WORDS: *Vaginal atresia. Vaginoplasty. Coitus. Amnion.*

INTRODUCTION

Vaginal atresia can be congenital or acquired. Absence of a functional vagina can lead to primary/secondary amenorrhoea or haematometra. But the inability to have proper intercourse and resultant failure to conceive can cause serious psychological, emotional and social impacts on the young patients and lead to tremendous sufferings. Acquiring an artificial functional vagina, completely changes the personality and the social life of the patient.[1] Usually the help of plastic surgeons becomes essential in this reconstruction process.

Secondary vaginal atresia is relatively more common in the developing countries due to various noxious materials placed in vagina for induced abortion, treatment of infertility and pelvic inflammatory disease. Due to sloughing, dense fibrous strictures and adhesions, vaginal cavity gets obliterated. Similar adhesions develop after the delivery of the baby, if tears in the vagina are left unnoticed or improper stitching is carried out. Vaginal dilatation is an option but may cause profuse haemorrhage due to breaking down of adhesions and even danger of urinary fistulae. So formal vaginoplasty followed by dilatation is the preferred treatment to maintain vaginal cavity in these cases.

CASE REPORT

A 25 years old lady presented with history of apareunia after the delivery of a baby 4 months ago. She was delivered in a hospital by the midwife staff. It was spontaneous vaginal term delivery. She did not know about the details of the delivery, whether she underwent an episiotomy, instrumentation or had any tears. According to her, the duration of labour was about 6 hours. Postpartum period was uneventful. She had normal lochial flow during first two weeks. Following the delivery, the baby was breast-fed. Her husband was outside the station and came back 3 months after the delivery. The first coitus was extremely painful; and a complete failure. She had no urinary or bowel complaint.

Physical examination revealed a young cooperative lady with stable vital signs. Abdomen was soft and non-tender. Vaginal examination revealed a completely obliterated vagina, with densely scarred tissue. The urethral orifice, mons pubis, labia majora and the anal verge were normal. On ultrasonography, uterus and adenexae were normal with no fluid collection in the pelvis. Laboratory studies were unremarkable. A diagnosis of secondary vaginal atresia was made. The couple was informed about the disease and vaginoplasty using human amnion was planned.

Kleen enema was given a day prior to surgery and peri-operative antibiotic cover of injectable cefuroxime and metronidazole was given. Under general anaesthesia, the patient was placed in lithotomy position. After taking aseptic measures, a cruciate incision was made through the perineum between the anus and the urethra. A space was created by sharp dissection of dense adhesions upto the pouch of Douglas. Cervix was dilated upto Hegar's dilator No 8. A mould was prepared by 60cc syringe. Its nozzle was removed and sharp edges were rounded on the flame. It was then covered with amnion of a freshly delivered placenta from a planned caesarean section. Mould was then placed in vagina and its edges were stitched to the vulval skin (Figure 1).

Postoperatively, she remained afebrile and the recovery was

Figure 1: Mould (60 cc cyringe) covered with the amnion placed in the dissected vaginal canal. The amnion has also been shown separately.

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Received June 6, 2006; accepted December 26, 2006.

uneventful. Laxatives were also given. On 7th postoperative day, the mould was removed under GA. On examination of vagina, amnion was well taken up. There was no area of pressure necrosis or ulceration. Vagina was washed with normal saline. A new mould was prepared, using a condom containing many gauze pieces under pressure. The open end of the mould was stitched with silk. It was placed in vagina throughout the day and night for 6 weeks, except at the time of defecation and micturition. During the next 6 weeks, this mould was only kept at night. After 3 months, regular coitus replaced this dilatation treatment. Contraception was advised, in the form of cyclical oral contraceptive pills for one year. The patient started regular menstruation.

After about 18 months, she conceived and had regular ante-natal check ups. She was subjected to an elective caesarean section at 38 weeks of gestation. A healthy baby boy was delivered with no postoperative complications.

Discussion

A new vagina can be formed either by intermittent vaginal dilatations (non-surgical method) or by vaginoplasty (surgical method). The non-surgical method may be useful in certain cases of primary vaginal atresia. However, majority of patients require vaginal reconstruction. The cooperation of the patient is of paramount importance in vaginoplasty. The most important step is to maintain the vaginal space during contraction period of wound healing and this is accomplished by effective moulds/stents.

The major indications of vaginal reconstruction are congenital absence of vagina [Rokitansky-Kuster-Hauser-Mayer (RKHM) syndrome], gynaecological tumour excision, male to female sex surgery[2] and secondary vaginal atresia. Congenital vaginal atresia is estimated to occur in 1 in 4000-5000 live female births. Secondary vaginal atresia is relatively a rare disease[3], however, the exact incidence has not been documented in the text. It can occur secondary to badly managed vaginal delivery causing vaginal injuries and later scarring. Fully trained female delivery assistants are, therefore, essential for the normal delivery. In our society, the untrained female staffs (*dais*, LHVs) play a major role in the increasing incidence of these complications. Neglected foreign bodies in the vagina can also lead to stenosis and fistulae.[4] Radiotherapy has also been documented to result in a similar abnormality.[5]

Vaginal atresia was apparently known to Hippocrates. Since centuries, surgical creation of an artificial vagina is being attempted with varying success. Columbus was perhaps the first to describe the congenital absence of vagina in 1559. Dupuytrens (1817) was the first to report vaginoplasty using tampons to maintain patency. Abbe (1898) was the first to cover the mould with split thickness skin graft. However, it was Mc Indoe and Bannister (1938) who emphasized the need for dissecting adequate space, inlaying split thickness skin grafts over the mould and most importantly continuous and prolonged dilatation during the contractile phase of healing. Other surgical methods include constructing neovaginas out of sigmoid colon[6], ileum, caecum[6], pudendal thigh flaps[7], fasciocutaneous flaps, gracilis myocutaneous flaps, labia minora flaps, flaps raised following tissue expansion of the labial pocket, peritoneum and bladder mucosa, amnion[8], the interceed absorbable adhesion barrier, autologous buccal mucosa[5] and lately artificial dermis and recombinant basic fibroblast growth factor[9] have been used. Free skin grafts, peritoneal grafts, local skin flaps and bladder mucosal grafts may scar the patient. Bowel segments have the disadvantages of abdominal scarring and the possibility of bowel obstruction, secretions, unpleasant odour and mucosal ulceration. Considering the diverse variety of surgical options, a team work involving the patient, husband and the gynaecologist along with the plastic surgeon is essential, as the possible outcomes need to be discussed in detail.

The human amniotic membrane is a readily available, cost-free, protective biologic dressing for wounds and burns.[10] It has also been shown to stimulate granulation tissue and new vessel formation in chronic venous leg ulcers by producing angiogenic factors. The amnion does not express histocompatibility antigens and there is no evidence of immune rejection when amnion is implanted subcutaneously. These features make the amnion a perfect tissue graft for covering the artificially dissected vagina. Amnion also produces lysozyme which is bactericidal. When an uncontaminated amniotic mesenchymal surface is applied to the raw surface of the dissected vaginal tunnel, it adheres firmly, protects the underlying granulation tissue and facilitates epithelialization. The human amniotic membrane is capable of complete metaplasia into mature squamous epithelium, but the mechanism of this cellular transformation is unknown.

The use of amniotic membrane over the mould eliminates the need for skin grafting. It is obtained aseptically from a woman undergoing concomitant elective caesarian section or it may be stored in normal saline[1] at 4°C for 48 to 72 hours. The amniotic membranes with meconium staining, suspected chorio-amnionitis or premature rupture should not be used for grafting. Ideally, the sera from all amnion donors should be tested for hepatitis B, hepatitis C, HIV, syphilis and toxoplasmosis.

The incidence of vaginal tears and improper repairs of these tears can be easily prevented, provided the delivery facilities and the staff is upto the standards. In patients who develop such complications like vaginal atresia, team work is needed in order to have a psychologically and physically fit lady. The use of amnion in vaginal reconstruction is a simple, practicable and easily available option to all the treating gynaecologists and surgeons.

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