

Original Article

Vaginoplasty using amnion graft along with a fourchette flap

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Abstract

Objectives: To evaluate the amnion graft in vaginoplasty, to assess the advantage of a flap placed over fourchette and to evaluate the benefit of gauze mould. **Methods:** Out of the 35 subjects of primary amenorrhea, eight with complete vaginal agenesis were selected for vaginoplasty. Half of these received split thickness skin graft and other half received amnion graft. An additional triangular flap raised locally was applied at the fourchette area in all. The mould used was made of gauze. **Results:** Amnion graft was taken completely and presented almost no complication as compared to skin graft with minimized hospital stay. The fourchette flap facilitated easy and painless insertion of the mould. There was no contracture or fibrosis of neovagina and introitus. Gauze mould was easy to prepare and caused no complication. **Conclusion:** Making a fourchette flap and using amnion graft along with a gauze mould reduced the operating time, hospital stay and allowed easy and painless mould insertion with least complications.

Key words: vaginoplasty, fourchette flap, gauze mould, amnion graft

Introduction

Vaginal agenesis is present in one among 4000 to 10000 female births. Majority of these patients form part of Mayer-Rokitansky-Kuster-Hauser syndrome, with either absence or presence of only remnants of the uterus. There is association of renal or skeletal anomalies but ovarian functions are normal. These patients have been managed surgically by McIndoe's vaginoplasty using split thickness skin graft obtained from thigh or buttocks¹. Autologous graft like buccal

mucosa has also been used with success². Allograft like amnion has been used to line the neovagina³, which can reduce the morbidity of the graft donor site. Correct postoperative use of mould is recommended to avoid shrinkage and stricture of neovagina, whereas discontinuity between skin graft and perineal skin can cause problems that can lead to painful or difficult daily replacement of mould⁴. Hard moulds can result in urinary or rectal fistula formation¹. Softer moulds have been recommended to reduce the risk of fistula formation.

Methods

Thirty five subjects of primary amenorrhea were registered and evaluated for genital tract anomalies. Out of these, eight with complete vaginal agenesis and minimal or no uterine tissue development were counseled and after obtaining informed consent were taken for the study.

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Vaginoplasty was performed under general anesthesia using amnion graft in four cases (group A) and split thickness skin graft in the other four (group B). In both the groups (A & B) a triangular mucocutaneous flap was raised and used to cover the fourchette area. The split thickness skin graft was obtained from thigh or buttocks. Amnion was obtained from women undergoing elective cesarean section after being investigated for various infections like syphilis, HIV, hepatitis B and hepatitis C. The mould used was made of gauze prepared to the required size just before surgery.

Procedure

A mould measuring 11.5 cm x 3.5 cm was prepared by rolling gauze pieces of appropriate size fastened with a silk or cotton thread and two condoms were used to cover it (Figure 4). After giving general anesthesia, split thickness skin graft was obtained either from the front of the thigh or from each buttock measuring 9 x 15 x 0.02 cm with the help of a dermatome and sutured and sutured over the mould with outer skin facing it. The donor sites were dressed with sterile vaseline gauze. The patient was placed in lithotomy position and catheterized with an indwelling catheter of No. 12. The central dimple was identified in the blunt vagina (Figure 1). A triangular incision was made at the mucocutaneous junction starting from 7 O'clock position and taking it upwards to 1 cm below the urethral meatus and bringing it downwards to 5 O'clock position of the closed vagina. The triangular shaped mucosa (Figure 2) was separated from the underlying tissues by sharp dissection up till the mucocutaneous junction and was kept everted. A slightly deeper transverse incision was made at the site of dimple of the closed vagina and the rectovesical space was dissected bluntly with two index fingers. Two Sim's specula were used to visualize and ligate any bleeding points and the cavity was packed with gauge strip soaked in normal saline.

Fresh amnion was obtained from a woman simultaneously undergoing an elective cesarean section in an adjacent theatre and was preserved in normal saline. It was wrapped over the mould with amnion facing it and the chorion was gently peeled off from the amnion (Figure 3).

After removing the moist packs the mould covered with graft was placed along with the triangular flap into the neovagina. Three to four stitches were applied to approximate the labia majora to retain the mould.

Postoperative antibiotic cover was given along with low residue diet for four days.

Labial stitches were removed on the seventh and tenth postoperative day in Group A and B respectively. The mould was removed. The cavity was inspected and irrigated with normal saline and any extra graft tissue was removed and a new mould was kept in. Thereafter the patient was instructed to insert the mould herself.



Figure 1. Pre operative blunt vagina.



Figure 2. Triangular fourchette flap.

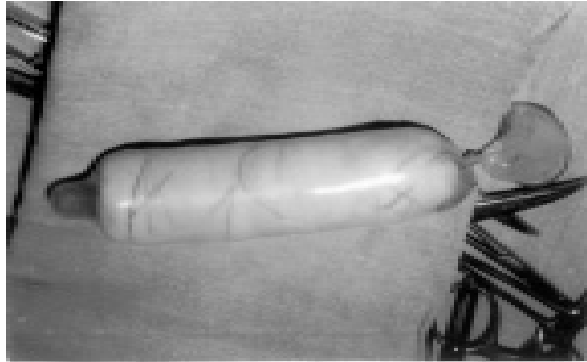


Figure 3. Gauze mould.



Figure 4. Reconstructed introitus with fourchette flap.

Results

The gauze mould was easy to prepare to the required size and did not cause any serious complications. As shown in table 1, the rectovesical space was entered without any difficulty or serious complications like hemorrhage or injury to the rectum, bladder or urethra in both the study groups. Amnion graft was taken completely in all four cases of group A without any evidence of rejection, infection or granulation tissue

formation though discharge continued for three months without active infection in one case. In group B partial rejection with foul smelling discharge and granulation tissue formation was observed in one case. The triangular fourchette flap got firmly and completely implanted (Figure 4) in all the cases of both the groups and facilitated painless and easy insertion of the mould. There was no case of stenosis of introitus and the vaginal depth of 8-11 cm was achieved in all the cases of both the groups observed over a period of 1 to 12 years. None of the cases in both the groups had complications like rectal / vesical fistula, enterocele, syphilis, HIV, hepatitis or carcinoma of the vagina. In group B as shown in table 2 there was pain, delayed healing and disfigurement of donor skin site in two out of four cases.

Discussion

McIndoe's vaginoplasty is one of the most popular surgeries for vaginal agenesis. Skin graft obtained from different sites has been used to line the neovagina. Partial rejection of the graft can lead to formation of granulation tissue, fibrosis and obliteration of the neovagina. In the present study amnion was completely taken in all the four cases without any evidence of infection or granulation tissue formation (Figure 4). There was partial rejection of skin graft, infection with excessive granulation tissue formation in one out of four cases. Parikh¹ reported partial rejection of skin graft in 15 out of 29 cases.

Postoperative use of mould is the mainstay of surgery. Any discontinuity between the graft and the perineal skin can lead to fibrosis of introitus, which can cause contracture and closure of the neovagina. Hojsgaard⁴ reported three cases of vaginal contracture out of 26.

An intact triangular flap implanted at the fourchette in the present series was taken up completely, (Figure 4) which facilitated painless insertion of the mould in all the cases. No case of stricture of the vagina was observed in the present study in both the groups. The average depth of vagina in both the groups ranged from 8-11 cm in a follow up period of 1-12 years.

Parikh¹ reported destruction of the entire urethra with the use of wooden mould, and has recommended the use of softer moulds. The gauze mould (Figure 3) used in the present study was easy to prepare to the required size, cheap, light in weight and spongy enough to prevent extreme pressure on the surrounding viscera.

Table No. 1 Results with intra operative and postoperative complications.

Results and complications	Amnion graft (Group A-4)	Split thickness skin graft (Group B-4)
Intraoperative		
Inability to dissect rectovesical space	0	0
Massive intraoperative hemorrhage	0	0
Injury to rectum, bladder	0	0
Operation time (Minutes)	30-40	150-210
Postoperative		
Graft take	4	3
Infection/Foul discharge	0	1
Granulation tissue formation	0	1
Prolonged non infective discharge	1	0
Late complications (1-12 years follow up)		
Painful mould insertion/dyspareunia	0	0
Stenosis of introitus	0	0
Contracture of vagina	0	0
Vaginal depth (8-11 cms)	4	4
Rectovaginal / Vesical fistulas	0	0
Enterocoele	0	0
Syphilis, HIV, Hepatitis B,C	0	0
Carcinoma of neovagina	0	0
Hospital stay (days)	10-12	40-60

Table 2. Complications of split thickness skin donor site.

Donor site complications	Amnion graft (Group A-4)	Split thickness skin graft (Group B-4)
Skin donor site complication		
Pain	-	2
Infection	-	2
Delayed healing	-	2
Disfigurement	-	2

There was no case of urinary or rectal fistula in the present series.

Amnion graft was easy to use without the additional morbidity of the donor site. With the use of amnion,

vaginoplasty was simplified and shortened to a 30-40 minutes surgery with hospital stay of 10-12 days as compared to skin graft group where the operating time lasted 150-210 minutes and the hospital stay was from 1-2 months due to additional morbidity of the skin donor site.

Conclusion

The use of amnion, gauze mould and triangular fourchette flap in vaginoplasty can reduce the operative time, hospital stay and simplify the procedure.

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