



Amnion Grafting in Vaginoplasty - A Personal Experience

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Editorial

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Editorial

For an unfortunate girl suffering from primary amenorrhea with absent vagina, vaginoplasty is a great remedy. It brings hope to live a normal life. Vaginoplasty is for vaginal atresia and its incidence is 1:4000 to 1:10000. For vaginoplasty a neovagina is to be created in the first step. A mould is to be placed in it to maintain the canal. To cover the raw area created in the neovagina, it needs to be covered by a suitable graft [1].

Vaginal Agenesis is of Mainly 2 Types:

- Partial – It includes non-canalized upper 2/3rd vagina which could be associated with absent cervix.
- Total- It is rare and occurs in an average of 1 in 4000 to 5000

Example includes MRKH syndrome and testicular feminising syndrome.

Types of Vaginoplasty [2]

1. Bowel vaginoplasty
2. Laparoscopic vaginoplasty
3. Vechietti operation
4. Wharton shears vaginoplasty
5. Oxidized cellulose neovaginoplasty
6. William's vaginoplasty
7. McIndoe's vaginoplasty
8. Modified McIndoe operation
9. Vaginoplasty using amnion graft

Various Materials Used for Last 100 Years for Vaginoplasty Includes:

- 1909, Baldwin – double loop ileum; 1910, Popaw; 1911, Schubert;
- 1938, Wharton; 1948, Counseller; 1950-1989, McIndoe with 83% success with skin graft

Features of Amnion as a Graft

- Facilitates migration of epithelial cells
- Reinforce basal cell adhesion
- Promote epithelial differentiation
- Promote epithelialization in healing wound
- Promote oxygenation of epithelial cells
- Promote good permeability of basement membrane
- Non immunogenic and reduces inflammation and pain
- Serves as matrix for cell deposition
- It contains growth factors, cytokines, vascular endothelial growth factors, platelet derived growth factors: AA and BB,
- Transforming growth factors: alpha and beta, basic fibroblast growth factor, granulocyte colony stimulating factor, Interleukins 4,6,8 and 10.

Amnion Consists of 5 Layers:

1. Epithelium
2. Basement membrane
3. Compact layer
4. Intermediate layer
5. Fibroblast

Advantages of Amnion Grafting Includes [3]

- It is easy to perform (plastic surgeon not required)
- It is effective
- There are no morbidities of donor area
- It is less time consuming
- It is cost effective

Precautions to Be Followed Before Amnion Grafting Includes Screening the Donor for

1. Viral markers: Hepatitis B surface antigen

- Hepatitis C
 - HIV I and II
 - VDRL
2. Sepsis markers

Procedure of performing a Vaginoplasty with an amnion graft includes basic standard preparation after which vaginal skin between urethra (anteriorly) and rectum (posteriorly) incised and artificial tract created. In partial vaginal agenesis with functional uterus, the peritoneal cavity is opened by laparotomy and haematometra drained by hysterotomy. If there is associated cervical agenesis, neocervix is created by communicating neovagina from above. A soft mould is prepared by filling a condom with cotton wools which is then wrapped with a piece of freshly harvested amnion and then fitted to neovagina. The labias are opposed by a few interrupted nonabsorbable sutures to contain the mould in situ. Uterine catheter is fixed.

Postoperative directions followed include:

- 1) Urethral catheter removed on 3rd day
- 2) Mould withdrawn on 10th day
- 3) Vagina is irrigated daily with diluted iodine (betadine) solution
- 4) Intermittent dilatation started and uterine catheter removed after 20 days.

Discussion

The author, in his own series of 19 cases (5 MRKH Syndrome, 14 Vertical Fusion Defect) performed in different institutes of Assam (Northeast India) from 1996, December to 2021, December, after long term follow up (6months to 12 years) has found very encouraging results with Modified McIndoe technique using Amnion graft over a mould (hard wooden, plastic, sponge or soft mold with condom filled with cotton wool). 2 of the long term followed up patients have had successful pregnancies. Others showed a functional vagina (more than 6cm long) with satisfactory sexual function. Only one patient had rectal injury during the procedure which was repaired in the same sitting with an uneventful recovery. Patient was discharged after 7 days from the hospital. Molds were changed after 7-10 days. Repeated dilatation was performed and patients were trained to use mold for self-dilatation of vagina. At the end of 1 year follow up, Vaginoplasty using an Amnion graft led to a structural correction of 92.8% and a functional correction of 85%. Satisfactory results following amnion grafting with modified McIndoe operation was observed also by Fotopoulous, et al,

[4] Vatsa, et al. [5] Poudel S, et al. [6] Cetin MT, et al. [7] and Fedele L, et al. [8].

Conclusion

Modified McIndoe technique is considered to be one of the best technique for patients with total vaginal agenesis. Proper care should be taken to screen the donors for viral markers and sepsis. Amnion grafting in place of skin grafting is an advantageous option which is easily available, cheaper and with less perioperative morbidities.

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