TREATMENT OF VAGINAL ATRESIA AT A MISSIONARY HOSPITAL IN BANGLADESH: RESULTS AND FOLLOWUP OF 20 CASES

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ABSTRACT

Purpose: We report a 9-year experience with successful treatment of patients with vaginal atresia at a missionary hospital with decreased facilities in Bangladesh.

Materials and Methods: From 1995 to 2002, 20 patients 10 to 29 years old (average age 18.4) with Mayer-Rokitansky-Kuster-Hauser syndrome underwent total vaginal replacement. Ten of the 20 females were married and the anomaly was discovered after marriage. In the remaining 10 cases the diagnosis was suspected by the parents because of absent menstruation. In all patients the neovagina was created using a 12 to 14 cm segment of distal sigmoid colon.

Results: Short-term morbidity was minimal. At the long-term followup, which was available for 16 patients, the neovagina had a good-appearing introitus. No stenosis, stones or colitis was reported. Six patients already had an active sexual life, which was reported to be satisfactory. Five couples had already adopted 1 or more children.

Conclusions: Good perioperative preparation and assistance, assurance of cyclical followup and a trained surgical team permitted successful treatment of a complex genital malformation at a missionary hospital with modest services. Sigmoid vaginoplasty in a developing country seems to be the best choice because of simple management and followup. Young women unable to procreate because of vaginal atresia seem to have an unexpected normal family and social acceptance in Bangladesh after complete vaginal replacement.

KEY WORDS: vagina; atresia; reconstructive surgical procedures; infertility, female; abnormalities

Bangladesh is one of the poorest countries in the world with a population of more than 130 million individuals in a relatively small land.1 From 1991 to 2002 an Italian pediatric surgical team performed 11 surgical missions of 1 month each at a missionary hospital in Khulna, Bangladesh. The Italian Red Cross provided the cost to build a missionary hospital with modest services. Sigmoid vaginoplasty in a developing country seems to be the best choice because of simple management and followup. Young women unable to procreate because of vaginal atresia seem to have an unexpected normal family and social acceptance in Bangladesh after complete vaginal replacement.

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Patients and Methods

From 1995 to 2002, 20 patients 10 to 29 years old (average age 18.4) with Mayer-Rokitansky-Kuster-Hauser syndrome underwent total vaginal replacement for complete or subcomplete vaginal atresia. Ten of the 20 patients were married and the anomaly was discovered after marriage. The husbands abandoned 2 of the women. In the remaining 10 cases the parents suspected the diagnosis because of absent menstruation.

Preoperative abdominal ultrasound showed an absent uterus in 8 patients and severe hypoplasia of the uterus in 12. Three patients presented with an ovary with 1 or more cysts. Furthermore, 1 patient had a right simple pelvic kidney and another had horseshoe kidney. All ultrasound findings were confirmed intraoperatively. In 6 of the 20 patients the ectodermic distal portion of the vagina was present (2 to 4 cm). In the remaining cases vaginal atresia was complete and the area of vaginal introitus was entirely flat.

Before surgery all patients received full bowel preparation, antiparasitic therapy (100 mg mebendazole for 3 days) for worm infestation and antibiotic prophylaxis starting the day before surgery.2 No prophylaxis for any other illness was given in this group of patients. Antiparasitic therapy and full bowel preparation required a week or more. During this long hospital stay before surgery patient general conditions were assessed and any malnutrition status was corrected.

Surgery was performed using general anesthesia and epidural analgesia with an epidural catheter left in place for postoperative pain control. Through a Pfannensteil incision and with the midline muscles split from umbilicus to pubic bone a 12 to 14 cm segment of distal sigmoid colon with the vascular supply from the inferior sigmoid artery and vein was divided (see figure). The proximal portion of the graft was closed with 2 layers of absorbable suture. Bowel continuity was reestablished by single layer end-to-end anastomosis using interrupted 3-zero absorbable sutures with the knots inside the lumen.

An inverted U-shaped incision was made in the vulval region close to and below the urethral external opening, allowing us to start dissection between the urethra and rectum to create the bed for the neovaginal colon conduit. The retrosvesical peritoneum was incised on top of a Hegar dilator pushing upward through the perineal approach. The tunnel between the urethra and rectum was progressively enlarged by Hegar sounds to achieve a caliber comparable to large...
bowl size. The mobilized sigmoid segment was pulled through, avoiding any tension. The distal neovaginal opening was fixed at the vulval mucosa using absorbable interrupted sutures. The neovagina was filled with petrolatum gauze, which remained in place for a week to facilitate graft fixation to the surrounding tissue.

Two weeks after surgery before discharge home the patients were taught how to dilate the neovaginal introitus and irrigate the neovagina for mucous removal. A set of Hegar dilators was provided for each patient to be used at home once daily for the first 2 months and once weekly for the following 10 months. Patients were instructed to return once yearly to be seen by the surgeon.

RESULTS

Four patients treated during 2002 had a regular hospital course, although they were not available for long-term followup. In 16 patients followup was between 2 and 9 years. Postoperative morbidity was minimal. In 1 patient antiparasitic therapy was not adequate and she vomited worms after surgery. Two patients complained of superficial wound infection. All 16 patients have a cosmetically pleasing vaginal introitus. Moreover, the thick colonic anastomosis of the neovagina somehow limited intercourse. Redundant skin was removed with the patient on local anesthesia and the problem was solved. We never observed endovaginal stone formation. Vaginal instrumentation by Hegar dilators was discontinued at the first annual outpatient followup in all cases. Six patients already had an active sexual life, which was reported to be satisfactory. Five couples adopted 1 or more children.

DISCUSSION

Vaginal atresia in patients with Mayer-Rokitansky-Kuster-Hauser syndrome is caused by aplasia of the müllerian ducts. The anomaly has various presentations. To our knowledge our homogeneous series of patients with Mayer-Rokitansky-Kuster-Hauser syndrome undergoing sigmoid vaginoplasty is one of the largest reported. In addition, the existing followup of 2 to 9 years for 16 patients provides interesting information on long-term function, and the psychosocial and sexual impact in a society not familiar with these problems.

In all of our patients vaginal atresia was discovered late in life at an average age of 18.4 years. In Bangladeshi society concern about absent menstruation seems to start only at the time of marriage arrangements or it is totally ignored and the problem may become dramatically evident after marriage. In these circumstances the woman may expect a miserable future. She is often abandoned by the husband and usually also refused by the original family. She is unsuitable as wife and parents would not like to have her back to feed. Luckily in great contrast to this behavior, 5 of our patients not only were not abandoned by the husband, not only started a satisfactory sexual life after vaginal replacement, but they even adopted children. Another reason to explain the late presentation of Mayer-Rokitansky-Kuster-Hauser syndrome in Bangladesh is certainly the difficulty of patients finding a specialized hospital for the right diagnosis and treatment. Some of our patients presented late because they did not know where to go. The relatively younger age of marriage, which is typical of the Third World, prevented presentation age from being even higher. The 11 years of regular annual missions by the same pediatric surgical team at the same missionary hospital in Khulna, making the physicians and place extremely popular in the region, may give us the chance in the future to treat patients with the same disease earlier in life.

In 6 of our 20 patients 2 to 4 cm of the ectodermic distal portion of the vagina was present, which was inadequate for any function but usable for distal anastomosis with the colon conduit a factor in a finer final appearance. Of the cases 10% presented with associated urinary anomalies.

The husbands had already abandoned 2 of our married patients, although 8 others presented with the husband and the decision on vaginal replacement involved the 2 partners. These wives and husbands were informed on all aspects of the surgical procedure, namely the prospect of an active and satisfactory sexual life but the unfeasibility of procreation. Five couples decided to adopt 1 or more children and they reported normal sexual activity. This social behavior is revolutionary in Bangladesh, where a husband may abandon a wife for even minor vaginal problems. Unmarried women in our series made the decision to proceed with sigmoid vaginoplasty with parental involvement. The majority expressed the wish to adopt children after marriage, although currently we do not know whether any married after vaginal replacement.

The choice of sigmoid colon as a graft for total vaginal replacement was effective. Graft adequate length could be easily obtained and its excellent blood supply minimized complications such as contractions, shrinkage, narrowing or stenosis of the perineal introitus. Moreover, the thick colorectal anastomosis somehow limited intercourse. Redundant skin was removed with the patient on local anesthesia and the problem was solved. We never observed endovaginal stone formation. Vaginal instrumentation by Hegar dilators was discontinued at the first annual outpatient followup in all cases. Six patients already had an active sexual life, which was reported to be satisfactory. Five couples adopted 1 or more children.
wall tolerates trauma better than small bowel or skin graft. Postoperative management is simple. Calibration, dilation and irrigation are temporary and well tolerated.

None of our patients experienced diversion colitis, as some investigators have recently pointed out. This condition results from separation of an intestinal segment from the fecal stream. The mucosa appears edematous with ulcerations, friability and chronic inflammation. To our knowledge the etiology of this condition is unknown. The absence of these late complications in our patients could be related to innate disease of the intestinal tract and to the low incidence of colitis in developing and southeastern Asiatic countries.

Primary adenocarcinoma of the sigmoid neovagina has been reported. Vigilance must be maintained in these patients. Vaginoscopy is recommended for any suspicious symptoms as well as 10 years after surgery. We believe that using sigmoid colon for vaginal replacement is the procedure of choice in developing countries due to simple postoperative management. The benefits of the technique include a limited need for postoperative dilation, and the minimal and easy care required by patients.

CONCLUSIONS

Our experience shows the feasibility of successfully treating patients with complex congenital anomalies in Bangladesh, guaranteeing adequate and cyclic followup as well as a trained surgical team at surgery. Good preoperative patient preparation and assistance are crucial as well as a fine surgical procedure. The sigmoid colon seems to be the best choice for patients with Mayer-Rokitansky-Kuster-Hauser syndrome. In addition to the humanitarian implications of the surgical missions, it was instructive to observe the unconventional acceptance by the Bangladeshi society of women unable to procreate as well as their decision to adopt children.

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REFERENCES