The Anterior Sagittal Anorectoplasty for Treatment of Ano-vestibular Fistula in Newborn and Children
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Abstract

Background/ Purpose: Anorectal malformation is one of the major disabling congenital malformations in neonates. Vestibular fistula and perineal ectopic anus constitute the most common anorectal malformations in female children. Different surgical techniques have been described for correction of such anomalies. The aim of this study was to evaluate the results of anterior sagittal anorectoplasty (ASARP) technique in treatment of vestibular anus in newborns and infants.

Patients & Methods: Thirty cases with vestibular anus were treated by ASARP. Their age range was 3 weeks to 18 months. Eight cases had previous cut back procedure to relieve intestinal obstruction and were kept on regular anal dilatation. None of the thirty cases required pelvic colostomy.

Results: Mild wound infection occurred in two cases and improved conservatively. However, massive wound infection with complete disruption of the wound occurred only in one case and redo surgery was necessary after 6 months and the child did well in the postoperative period. One case had mucosal prolapse which improved spontaneously in the post operative period. Anal stenosis occurred in one case and responded to regular anal dilatation. There was a normally looking perineum in all cases. Faecal incontinence; was difficult to evaluate as the age of the patients was under 3 years. However, there was no perineal soiling or staining in all cases throughout the follow up period.

Conclusion: The anterior sagittal anorectoplasty technique proved to have many advantages in the treatment of vestibular anus. It provides excellent perineal exposure with accurate reconstruction of the perineal body and the anterior fibres of the sphincter, it obviates the need of pelvic colostomy with its morbidity, it has minimal post operative morbidity and above all it can be done safely during the neonatal period.

Index Word: Vestibular Anus, Anterior Sagittal Anorectoplasty

INTRODUCTION

Anorectal malformation is one of the major disabling congenital malformations in children, accounting for 1:5000 live births. Vestibular fistula and perineal ectopic anus constitute the most common anorectal malformations in female children. Different surgical techniques have been described for the correction of such anomalies including: cutback procedure, anal transplantation, Y-V plasty and posterior sagittal anorectoplasty (PSARP) which was introduced by Alberto Pena and De-Vries in early 1980’s. Although this technique is effective, but putting in mind that children with
vestibular anus have their rectal pouch already traversed the levator ani muscle. The idea of a more conservative approach without cutting the pelvic floor has been raised.

The aim of this study was to evaluate the results of ASARP technique in the treatment of anovestibular fistula in neonates and infants.

PATIENTS AND METHODS

Thirty cases with ano vestibular fistulae presented from April 2005 to October 2007 to assiut university children hospital were treated by ASARP. Their ages ranged from 3 weeks to 18 months. Their weight ranged from 3.5 to 10.8 Kg. (2 cases were operated upon within the neonatal period, 8 from 1 to 6 months and 20 from 6 to 18 months of age). Eight cases had previous limited cut back procedure to relieve intestinal obstruction and were kept on regular anal dilatation. None of the thirty cases required pelvic colostomy. Patients were kept on oral fluids only for 3 days. Two days preoperatively they had daily enema washouts with chemoprophylaxis in the form of oral metronidazole 20mg/kg/d, in 3 divided doses.

Surgical technique: Under general anaesthesia, the infant is positioned in a supine squatting position. The centre of the external anal sphincter is assured by the anal dimple and electrical stimulation. A circumferential incision in the mucocutaneous junction is made around the ectopic anal orifice then a vertical skin incision is extended to reach up to the centre of the external sphincter (anal dimple). This skin incision ends with an inverted Y-shape to create skin flap into the posterior wall of the newly formed anal canal. The rectal wall is then meticulously dissected from the posterior vaginal wall anteriorly with sharp and blunt dissection. Dissection is continued posteriorly at both sides cutting only the anterior muscle fibres of the anal sphincter leaving the puborectalis muscle intact. Usually 4-5 cm of the rectum is mobilized to ensure to anastomosis without tension. Repair of the perineal body started from below upwards with 4/0 vicryl interrupted stitches taking care to include the rectal wall in some stitches to prevent retraction of the rectum. The rectum is finally sutured to skin around and the skin of the perineum is sutured. The child was kept on IV fluids for 2 days and on oral fluids for another 4 days. The postoperative IV antibiotics were given in the form of metronidazole and a third generation cephalosporin for 3 days. The wound was dressed with vaselinized gauze with the application of betadine ointment two to three times daily.

Follow up: The patients were reviewed in the outpatient's clinic 2 weeks postoperatively to assess anal calibration and dilatation. This anal dilatation was continued for three to six months thereafter. The patients were seen monthly for another six months.

RESULTS

Three patients had early postoperative complications (within 10 days); two developed minimal wound infection which responded to conservative measures with daily frequent dressings and antibiotics. One case had severe infection and complete wound disruption. Four cases had late postoperative complications; one had anterior migration of the anus following the severe wound infection and disruption so redo surgery was done 6 months later, one case had mucosal prolapse that was managed conservatively. Anal stenosis occurred in only one case and responded to regular anal dilatation. Faecal impaction developed in one case that responded to enema. No bleeding or acquired fistula was encountered.

Electrical stimulation revealed the presence of the anus within the sphincter with good contractions. Regarding faecal continence, as the age of the patients was less than 3 years of age, it was difficult to interpret, however there was good anal tone, no perineal soiling or staining in all cases throughout the follow up period which reached 12 months.

Table 1. Post operative complications.

<table>
<thead>
<tr>
<th>Post operative Complications</th>
<th>No of Patients</th>
</tr>
</thead>
<tbody>
<tr>
<td>Early postoperative (within10days)</td>
<td></td>
</tr>
<tr>
<td>Bleeding</td>
<td>0</td>
</tr>
<tr>
<td>Minimal wound infection.</td>
<td>2</td>
</tr>
<tr>
<td>Major wound infection and complete disruption.</td>
<td>1 *</td>
</tr>
<tr>
<td>Late postoperative</td>
<td></td>
</tr>
<tr>
<td>Anterior migration of the anus.</td>
<td>1 *</td>
</tr>
<tr>
<td>Mucosal prolapse.</td>
<td>1</td>
</tr>
<tr>
<td>Anal stenosis.</td>
<td>1</td>
</tr>
<tr>
<td>Fecal impaction.</td>
<td>1</td>
</tr>
<tr>
<td>Acquired fistula.</td>
<td>0</td>
</tr>
</tbody>
</table>

* Same case.
DISCUSSION

Several surgical techniques have been described for the correction of ano-vestibular fistula which usually results in an anal opening made anterior to the centre of the external sphincter. These operations include; cutback procedure, anal transposition, and Y-V plasty. However the cut back operation, since been reported, has the disadvantage of contamination of the vagina and urethra with consequent vaginitis and urethritis due to mucosal involvement. Anal transposition is an operation of dissecting the rectum free from the surrounding tissues and passing them through the anal dimple. Also this technique has been limited by incomplete anatomic exposure, blind tunnelling of the rectum, lack of reconstruction of perineal body, need for colostomy and anterior migration of the anus in the long term. The posterior sagittal anorectoplasty (PSARP) reported by Alberto Peña and De-Vries in early 1980’s who introduced it for the high anorectal anomalies, although it has good anatomical exposure, it unnecessarily includes cutting of the levator ani muscle where the rectum had already traversed the pelvic floor muscles. So the idea of less traumatic approach arose.

These disadvantages have been offset by the anterior sagittal anorectoplasty technique. The ASARP was introduced by Okada in 1992 for treatment of recto-vestibular and ano-vestibular fistula. The ASARP was also described for treatment of post operative fecal incontinence, rectal prolapse and perineal trauma. The advantages of ASARP over the previously mentioned techniques are; better visualization during mobilization, the rectal exposure is obtained up to the level of coccygeal bone, the rectum is placed and anchored within the muscle complex and the perineal body is accurately reconstructed, only the anterior aspect of the sphincteric muscle complex is divided, the puborectalis is left untouched, so the continence mechanism is preserved, and the anterior fibres of the sphincter are sutured in front of the rectum and this prevents anterior migration of the anus later on. Although colostomy is avoided. However Chaterjee, 1991 advocated certain indications for colostomy; if the patient is over 5 years of age, in cases of megarectum or a small fistula that prevents adequate bowel preparation. The most major complication encountered in our series was heavy wound infection with complete wound disruption. It occurred in an 18 months female and resulted in anterior migration of the anal opening. Redo surgery was done 6 months later; however it was technically difficult because of rectal retraction and dense fibrosis between the rectum and the vaginal wall. Waiting for 6 months before the redo surgery should help oedema...
and fibrosis between tissue planes to subside. Our results are comparable with other authors' results.8

CONCLUSION

The anterior sagittal anorectoplasty technique proved to have many advantages in the treatment of vestibular anus. It provides excellent perineal exposure with accurate reconstruction of the perineal body and the anterior fibres of the external sphincter. The puborectalis muscle is untouched so it should provide excellent continence results and obviate the need for pelvic colostomy with its morbidity. However, good preoperative preparation is very important to avoid high infection rates. Also it has minimal post operative morbidity. Although, the technique can be done safely during neonatal period, however it may be better to wait until the age of 3-6months. A larger series is still needed to reach solid conclusions.

REFERENCES