Overlap Repair of Damaged Anal Sphincter

A Single Surgeon’s Series


From St. Marks Hospital, London, United Kingdom

PURPOSE: This study was undertaken to review consecutive cases of anal sphincter repair performed by a single surgeon with respect to outcome as measured by continence grade using the Parks-Browning scale. Other parameters such as manometry, pudendal nerve function, and morbidity are also reviewed with respect to outcome.

METHODS: Thirty-one of 52 patients identified by computer were available for analysis. Case notes were retrieved, and information was transferred into a standard proforma. Minimum follow-up was one month, and continence grade was documented from clinical notes recorded at follow-up. Statistical analysis was performed using Instat computer package.

RESULTS: Four patients were male, 27 were female. Average age was 41.9 years. There was no postoperative mortality; postoperative morbidity was 32 percent in total, but morbidity per procedure was 19.6 percent. Most (20 of 31) patients had a clear obstetric-related cause of their anal sphincter injury. Successful outcome was achieved in 74.2 percent of patients. Postoperative anal manometry was not discriminatory between successful and failed groups. Anal ultrasound appeared accurate in documenting residual anal sphincter defects in the poor outcome group in the small number of patients in whom it was done. Use of a stoma in covering the anal wound while it healed was associated with less infection of the wound, but there was no statistical difference in success rate between those covered by a stoma and those not covered.

CONCLUSIONS: Overlap repair of the damaged anal sphincter continues to give good results. Routine use of covering stomas is not supported in this small study; however, it should still be considered in difficult cases. Endoanal ultrasound may have the ability to identify those patients with poor results from an initial repair who may benefit from repeat repair. [Key words: Sphincter; Anal; Repair; Ultrasound; Results]


Incontinence is a condition not commonly faced by the general surgeon but certainly commonly encountered by the colorectal surgeon. Minor degrees of incontinence must be distinguished from major incontinence during the outpatient visit. Minor incontinence (postdefecatory soiling or staining) is not usually caused by major sphincter disruption, and a local cause should be pursued and corrected. Major incontinence, however, can be socially disabling in extreme cases, and sphincter function and morphology must be studied. If a sphincter defect is isolated, these patients can be offered surgery to correct their disability. Incontinence is classified into four grades. Grade 1 is full continence, Grade 2 is incontinence to flatus, Grade 3 is incontinence to liquid stool, and Grade 4 is incontinence to solid stool.

Parks and McPartlin1 reported their results of an overlapping sphincter repair technique from this institution, and this form of repair has been used by the surgeon (JPST) in this series. Browning and Motson2 reported results on 83 patients; they claimed “normal” continence in 78 percent of patients and a failure rate of 9 percent, which was defined as the patient being incontinent of all stool or the patient requiring a permanent colostomy. However, the patient mix in this group consisted of a large number of sphincter defects resulting from sphincter division that occurred during perianal surgery. This case mix is no longer occurring,3, 4 and the majority of overlap sphincter repairs performed at St. Mark’s Hospital are for obstetric injuries. Are the good results reported by Browning and Motson still applicable? We reviewed the results of overlap sphincter repairs performed by a single surgeon (JPST) from 1991 to 1994.

METHODS

This is a retrospective study of all patients who were undergoing overlap repair of the anal sphincter from 1991 to 1994. A patient data list was retrieved from the computer, and, subsequently, patient files were retrieved for review of the 52 patients listed by the computer, 31 of whom were available for analysis. Three patients were lost to follow-up, two of whom had their stoma closed elsewhere and did not return to the clinic. Five patients were incorrectly listed (i.e., had a postanal repair or other procedure). Notes could not be found on three patients, and stoma has yet to be closed in ten patients.

A standard proforma was used to record details of investigations and surgery performed, including operative time and hospital stay. Continence was graded
1 to 4 using the Parks-Browning classification. Grade 1 or 2 continence was defined as success and Grade 3 to 4 as failure (Fig. 1).

Follow-up, as defined by the last outpatient appointment, ranged from one month to three years. If patients had physical examinations in the postoperative period, these were documented. Anorectal physiology and anal ultrasound were performed using techniques previously reported from this institution.

**OPERATIVE TECHNIQUE**

All patients were admitted two days before surgery for bowel preparation using Picolax (sodium picosulfate; Ferring AB, Malmo, Sweden; 2 sachets). All patients received antibiotics during induction of anesthesia plus two postoperative doses. Patients were initially placed in the lithotomy position, and an incision was placed over the sphincter defect, usually an anterior “sad” incision because obstetric defects were all anterior. Before the incision, adrenaline (1:300,000) is injected into the rectovaginal septum area to decrease blood loss and, sometimes, make surgical planes more obvious. For anterior overlap repair, the rectovaginal septum is developed and an attempt is made to find the intersphincteric plane; however, sometimes both the internal and external sphincter must be included in the overlap because of a lack of planes. Once dissection proceeds beyond the scar, the planes immediately open up, indicating the limit of the upward dissection. Dissection then proceeds laterally beyond the scar to mobilize the retracted external sphincter. Once the scar and sphincter are defined, the scar can be divided and partially excised, then the sphincter is overlapped with 0 Prolene® (Ethicon, Inc., Somerville, NJ) “mayo” sutures. The scarred anal mucosa is excised in a “V,” and the anal mucosa is reconstructed with 3/0 Chromic catgut (Ethicon, Inc., Somerville, NJ). The wound is then partially closed, and the area that remains open is covered.

Routinely a loop colostomy is constructed as part of this procedure. After hospital admission, the patient is seen at six-week intervals until wound healing occurs. During this period, anal ultrasound and follow-up ARP measurements are often performed. After healing, the colostomy is closed (usually within 3 months).

**RESULTS**

Of the 31 patients, 4 were male and 27 were female. All patients had symptoms of incontinence for six months or greater (range, 6 months-31 years). Average age of the group was 41.9 years. There was a significant difference between average ages if the successful outcome group is compared with the failed outcome group (Table 1).

There is a difference if the gender ratios between the successful outcome group and the failed outcome group (Table 1) are compared. There is a 50 percent failure rate for males and a 29 percent failure rate for females; this difference does not achieve clinical significance ($P = 0.28$ Fisher’s exact test).

There was no postoperative mortality. Overall morbidity for the group was 10/31 (32 percent); however, because 25 patients had two procedures (i.e., closure of stoma), the actual morbidity per procedure is 10/51

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**Table 1.**

<table>
<thead>
<tr>
<th></th>
<th>Success</th>
<th>Failure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender ratio (M:F)</td>
<td>2:21</td>
<td>2:6</td>
</tr>
<tr>
<td></td>
<td></td>
<td>$P = 0.28$ (Fisher’s exact test)</td>
</tr>
<tr>
<td>Age average (yr)</td>
<td>39.5</td>
<td>48.9</td>
</tr>
<tr>
<td>Range (yr)</td>
<td>15–64</td>
<td>31–63</td>
</tr>
<tr>
<td></td>
<td></td>
<td>$P = 0.05$ (Student’s t-test)</td>
</tr>
<tr>
<td>Covering colostomy (%)</td>
<td>19 (76)</td>
<td>6 (24)</td>
</tr>
<tr>
<td>No colostomy (%)</td>
<td>4 (67)</td>
<td>2 (33)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>$P = 0.63$ (Fisher’s exact test)</td>
</tr>
</tbody>
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Figure 1. Preoperative and postoperative continence grades (Parks-Browning).