

Colostomy for a Fourth Degree Perineal Laceration: Where is the evidence?

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Citation

S Cawich, I Bambury, D Mitchell, J Plummer, E Williams. *Colostomy for a Fourth Degree Perineal Laceration: Where is the evidence?*. The Internet Journal of Gynecology and Obstetrics. 2006 Volume 8 Number 2.

Abstract

Obstetric anal sphincter injuries may cause disastrous complications including perineal cellulitis, recto-vaginal fistulae and fecal incontinence. Colostomies have been utilized to minimize morbidity, but there is still significant controversy surrounding this practice and little evidence upon which to base management decisions. We present a case where we believe a colostomy was necessary to protect a repaired fourth degree laceration and discuss the management decisions.

CASE REPORT

A 22 year old primigravida was admitted in labor at 38+1 weeks gestation by dates after an uncomplicated antenatal period. A medio-lateral episiotomy was performed during delivery to shorten the second stage of labor. A healthy male infant was delivered with a birth weight of 3.28Kg and head circumference of 341mm.

Examination of the perineum post delivery revealed the presence of a laceration that extended through the entire thickness of the vagina and freely communicated with the rectum.

The patient consented to examination and repair under anesthesia. The rectal mucosa was repaired first with 3/0 polyglactin (Vicryl Rapide®) sutures (Fig. 1).

Figure 1: A fourth degree perineal laceration is seen extending several centimeters into the rectum. The rectal mucosa has already been repaired with a sub-mucosal suture commencing at the apex of the laceration and extending continuously onto perineal skin.

The sphincter edges were overlapped and approximated with 1/0 polypropylene (Prolene®) sutures. The perineal muscles were individually repaired with 2/0 Vicryl® (Fig. 2), followed by the vaginal epithelium with continuous 3/0 Vicryl Rapide®. The repair was protected by fecal diversion through a sigmoid loop colostomy.

Figure 2: The transverse perineal and bulbocavernosus muscles have been individually repaired with 2/0 polyglactin

(Vicryl®) sutures.

Post-operatively, the area was cleaned daily with sitz baths. No therapeutic antibiotics were administered. The area healed uneventfully and the colostomy was closed ten days later. The recovery period was uneventful. Six months post repair, she has perfect continence with a Cleveland Clinic Incontinence Score of 1.

DISCUSSION

Severe perineal lacerations are reported to occur in up to 6% of women during vaginal delivery (1). Fourth degree tears are the most severe type, with completely transected anal sphincters and overlying anal mucosa (1,2,3,4). These injuries are accompanied by serious morbidity in over 50% of cases, even after early detection and repair (1,2,3,4).

This case illustrates the pertinent surgical principles that should be observed when repairing these injuries. It is important for experienced staff to perform anatomically correct repair (2,3,4). The mucosa should be approximated with absorbable sub-mucosal sutures (5, 6). And slowly absorbable or non-absorbable sutures should be used to repair the anal sphincter (2,3,4), preferably by the overlap technique (7, 8).

The need for simultaneous diversion of feces is an area that is under researched. Colostomies have been traditionally used to reduce infectious morbidity by diverting stools away from the perineal repair. Loop sigmoid colostomies allow full diversion of feces away from the distal bowel limb (9, 10), are rapidly constructed and easily closed without

laparotomy. They are readily accepted for secondary repairs (2, 11, 12) and when patients develop frank recto-vaginal fistulae (13), but the decision becomes less clear for primary repair of acute perineal lacerations.

The medical literature contains only a few case reports and small series with reports of colostomies during repair of acute injuries, but the indications are elusive and its performance is not standard (1, 14, 15, 16). There is also a marked difference in expert opinion, with 30% of coloproctologists but no obstetricians recommending diversion for third or fourth degree tears in a recent practice survey (2).

Colostomies may impair healing by reducing collagen metabolism and altering mucosal defense in the de-functionalized rectum (17). They may also increase infectious morbidity by attenuating mucosal integrity and promoting microbe translocation (18). And although our patient did not develop complications, 20-25% of patients experience additional morbidity at colostomy closure (19, 20).

Several authorities repair fourth degree lacerations without diversion because several factors promote uneventful healing. These are low energy injuries with minimal tissue loss and excellent blood supply. Furthermore, the trans-anal approach affords excellent exposure of obstetric lacerations, abolishing the problem of difficult exposure in the pelvis at laparotomy.

Many patients managed in this fashion may not experience morbidity, but some fourth degree lacerations are more prone to dehiscence. Surely the laceration allowing extensive free recto-vaginal communication encountered in this case is more likely to result in dehiscence than a laceration that transects only the anal mucosa over the sphincters, although both are classified as fourth degree by the current staging systems. This is an obvious limitation of current staging systems that makes standardized treatment difficult.

We firmly believe that the severe anatomic disruption seen in this patient warranted diversion to protect the repair. And with the proven safety of same admission colostomy closure (20), patients can have reversal before leaving hospital. However, the case illustrates the limitations in current classification systems and the difficulty in making a decision for colostomy creation.

CONCLUSION

Deciding on colostomy creation for fourth degree lacerations

is difficult because there is little evidence upon which to base management decisions. This is an area that is still under-researched. Further study is deserved and therapeutic decisions should be individualized at this time.

References

1. Cawich SO, Mitchell DIG, Martin A, Newnham MS, Dacosta VE, Lewis T, et al. Can we Improve Therapeutic Outcomes after Obstetric Anal Sphincter Injury at the University Hospital in Jamaica? *West Ind Med J.* 2007;56(1):53.
2. Fernando RJ, Sultan AH, Radley S, Jones PW, Johanson RB. Management of obstetric anal sphincter injury: Systematic review and national practice survey. *BMC Health Ser Res.* 2002;2(9):1472-6963.
3. Leeman L, Spearman M, Rogers R. Repair of Obstetric Perineal Lacerations. *Am Fam Physician* 2003; 68:1585-90.
4. Fernando RJ, Williams AA, Adams EJ. RCOG Green Top Guidelines: Management of third and fourth degree perineal tears following vaginal delivery. *RCOG Green Top Guidelines.* 2007;29.
5. Grant A. The choice of suture and techniques for repair of perineal trauma: an overview of evidence from controlled trials. *Br J Obstet Gynaecol* 1989;96:1281-9.
6. Kettle C, Johanson RB. Absorbable synthetic versus catgut suture material for perineal repair. *Cochrane Database Syst Rev* 2003; (1):CD000006.
7. Fernando R, Sultan AH, Kettle C, Thakar R, Radley S. Methods of repair for obstetric anal sphincter injury. *Cochrane Database of Systematic Reviews* 2006;3:CD002866.
8. Fernando RJ, Sultan AH, Kettle C, Radley S, Jones P, O'Brien PMS. Repair Techniques for Obstetric Anal Sphincter Injuries: A Randomized Controlled Trial. *Obstet Gyn.* 2006;107(6):1261-1269.
9. Rombeau JL, Wilk PJ, Turnbull RB, Fazio VW. Total fecal diversion by the temporary skin level loop transverse colostomy. *Dis Colon Rectum* 1987;21:223-226.
10. Morris DM, Rayburn D. Loop colostomies are totally diverting in adults. *Am J Surg.* 1991;161(6):668-71.
11. Browning GPB, Motson RW. Anal Sphincter Injury: Management and Results of Parks Sphincter Repair. *Ann Surg.* 1984;199(3):351-357.
12. Rothbarth J, Bemelman WA, Meijerink WJ, Buyze-Westerweel ME, van-Dijk JG, Delemarre JBV. Long-Term Results of Anterior Anal Sphincter Repair for Fecal Incontinence due to Obstetric Injury. *Digest Surg.* 2000;17(4):390-394.
13. Lavery IC. Surgical Management of Gastrointestinal fistulas. *Surg Clin North Am.* 1996;76(5):1183-90.
14. Young CW, Mathur MN, Evers AA, Solomon MJ. Successful overlapping anal sphincter repair: relationship to patient age, neuropathy, and colostomy formation. *Dis Colon Rectum.* 1998;41(3):344-9.
15. Engel AF, Kamm MA, Sultan AH, Bartram CI, Nicholls RJ. Anterior anal sphincter repair in patients with obstetric trauma. *Br J Surg.* 1994;81(8):1231-4.
16. Cook TA, Deane D, Mortenson NJM: Is there a role for a colorectal team in the management of severe third degree vaginal tears. *Colorectal Dis.* 1999;1:263-266.
17. Alverdy J, Sang-Chi H, Sheldon G, The effect of parenteral nutrition on gastro-intestinal immunity: importance of enteral stimulation. *Ann Surg.* 1985;202: 681-4.
18. Kudsk KA. Current aspects of mucosal immunology and its influence by nutrition. *Am J Surg* 2002; 183: 390-398.

19. Ghorra SG, Rzczycki TP, Natarajan R, Pricolo VE. Colostomy closure: impact of preoperative risk factors on morbidity. *Am Surg.* 1999;65:266-269.

20. Khalid MS, Moeen S, Khan AW, Arshad R, Khan AF. Same admission colostomy closure: a prospective, randomised study in selected patient groups. *Surgeon.* 2005;3(1):11-4.

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