

# Is a Diverting Colostomy Required After Repair of Obstetric Ano-rectal Injuries?

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## Abstract

Injuries to the ano-rectum may occur during vaginal deliveries. Occasionally, colostomies are created in these patients in order to prevent contamination of the perineal repair. We explore the factors that assist in making the decision for a colostomy.

## INTRODUCTION

Injuries to the ano-rectum may occur during vaginal deliveries. Occasionally, colostomies are created in these patients in order to prevent contamination of the perineal repair. We explore the factors that assist in making the decision for a colostomy.

## DISCUSSION

Between 0.2%<sub>1</sub> and 6%<sub>2</sub> of women sustain injury to the ano-rectum during vaginal delivery. These injuries are classified as third degree lacerations when the external anal sphincters are lacerated, and fourth degree when the ano-rectal mucosa is breached.<sub>3,4,5</sub> At a recent consensus meeting, several experts supported the use of a more descriptive classification proposed by Sultan et al.<sub>6</sub> where third degree injuries are sub-classified according to the depth of the laceration through the anal sphincters (Table 1).

## Figure 1

Table 1: Classification of Obstetric Perineal Injury

Injury	Definition
Second Degree	Injury to the perineum involving perineal muscles but not involving the anal sphincter
Third Degree	Injury to the perineum involving the anal sphincter complex <ul style="list-style-type: none"> <li>• 3a: Less than 50% of external anal sphincter thickness torn</li> <li>• 3b: More than 50% of external anal sphincter thickness torn</li> <li>• 3c: Internal anal sphincter torn</li> </ul>
Fourth Degree	Injury to the perineum involving the anal sphincter complex and rectal mucosa

Taken from: Fernando RJ, Sultan AH, Radley S, Jones PW, Johanson RB. Management of obstetric anal sphincter injury: a systematic review & national practice survey. BMC Health Serv Res. 2002;2:9. (3)

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Almost 50% of the affected women will experience a

complication despite early injury recognition and repair.

<sup>3,4,5,6,7</sup> Disastrous complications may occur, including recto-vaginal fistulae in 14% of women<sub>1</sub> and fecal incontinence in 20-50% of cases.<sub>1,4,7,8</sub>

Early diagnosis and anatomically correct repair by experienced surgeons are the cornerstones to minimizing the morbidity associated with these injuries.<sub>3,4,5</sub> Evidence continues to accumulate in favor of the overlapping technique to repair the anal sphincters.<sub>9,10,11,12,13</sub> A meta-analysis of 279 women from three prospective randomized trials supported the use of the overlapping technique over end-to-end repair because it resulted in a lower incidence of anal incontinence and better incontinence scores at 12 months.<sub>9</sub>

Rapidly absorbing sub-mucosal sutures should be used for mucosal repair. The latest Cochrane systematic review of 3,642 women across 8 randomized controlled trials<sub>14,15,16,17,18</sub> revealed that absorbable synthetic sutures result in less perineal pain and wound dehiscence while avoiding the need for suture removal.<sub>17</sub> Several authorities have also advocated the use of slowly absorbable monofilament suture such as Polydioxanone to repair the anal sphincters.<sub>3,4,5</sub>

While these are all evidence-based recommendations, the need for fecal diversion after primary repair is one area in which there is still deficient evidence to guide clinical practice. Several authorities have discussed the management of obstetric ano-rectal injuries in the medical literature, but many avoid commenting on the utility of a colostomy. Defunctioning colostomies are readily described for secondary repairs<sub>3,19,20</sub> and when patients develop frank

recto-vaginal fistulae<sup>21</sup>, but the decision becomes less clear for primary repair of acute injuries.

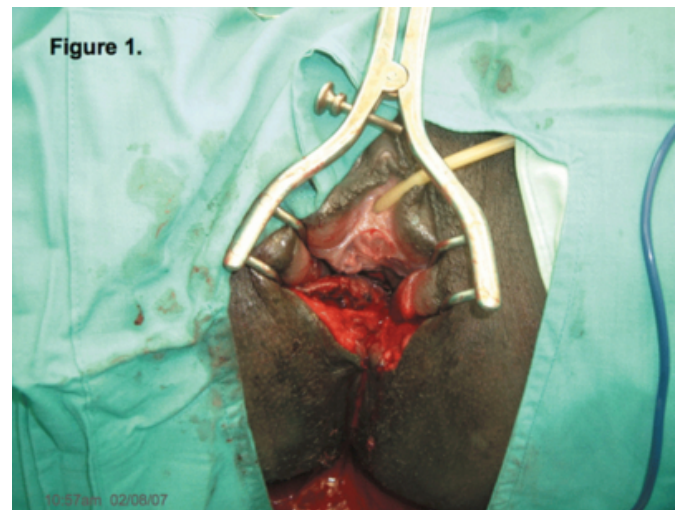
A review of the English literature over the past 20 years yielded no prospective trials evaluating the need for colostomy after repair of acute obstetric ano-rectal injuries. There were a few small case series with reports of defunctioning colostomies during repair of acute injuries, but the indications are elusive and its performance is not standard.<sup>1,23,24,25</sup> We encountered a single randomized trial of fecal diversion in 27 patients who had delayed anal sphincter repair.<sup>22</sup> There was no conclusive evidence that a defunctioning stoma conferred any benefit in wound healing or functional outcome after repair. Additionally, stoma-related complications occurred in more than 50% of the patients.<sup>22</sup>

While there is little data on which to base clinical practice, there is a marked difference in expert opinion regarding the utility of colostomies. In a recent clinical practice survey in the United Kingdom, 910 practicing obstetricians and colorectal surgeons responded to a questionnaire. Fernando et al reported that 30% of colorectal surgeons recommended a defunctioning colostomy for third and fourth degree tears, while no obstetricians surveyed believed a colostomy was needed.<sup>3</sup>

These recommendations rely on the existing staging systems to stratify the need for diversion. But the available staging systems are under-equipped to address this problem because they view the injuries as a two-dimensional construct by neglecting the depth that the laceration extends into the ano-rectum. Recently we encountered a patient with a severe laceration that extended through the entire thickness of the perineum, allowing free communication between the vagina and ano-rectum and extending 9cm proximally into the rectum (Fig. 1). Surely this type of laceration is more likely to dehiscence than a laceration that only transects the mucosa over the anal sphincters. Yet, both lacerations would be classified as fourth degree by the current staging systems. This makes it difficult to stratify the need for diversion using these staging systems.

### Figure 2

Figure 1: A severe perineal laceration sustained during vaginal delivery is seen from the lithotomy position. There is now wide communication between rectum and vagina. The laceration extends 9cm proximally into the pelvis.



There is a considerable amount of data on diversion after repair of acute non-obstetric injuries. There has been a notable shift away from mandatory colostomy for penetrating ano-rectal trauma.<sup>26,27,28,29,30,31,32,33</sup> There is now consensus that once extra-peritoneal injuries can be identified, they should be primarily repaired<sup>26,27,28,29,30,31</sup>, with diversion being reserved for blunt injury mechanism<sup>32</sup> or destructive injuries with severe anatomic disruption and marked contamination.<sup>27,28,29,31,33</sup>

Morken et al proposed the use of the Rectal Injury Severity Score of the American Association for Surgery in Trauma (Table 2) to assist in the decision for diversion.<sup>33,34</sup> Their small retrospective study of 45 patients with rectal trauma, demonstrated that there was greater morbidity with diversion for low-grade injuries. They recommended limiting fecal diversion to patients with Rectal Injury Severity Scores >II. The injury previously described (fig. 1) qualifies as a Grade IV injury according to the Rectal Injury Severity Score.

**Figure 3**

Table 2: Rectum Injury Severity Scale

Grade*	Type of injury	Description of injury
I	Hematoma	Contusion or haematoma without devascularization
	Laceration	Partial-thickness laceration
II	Laceration	Laceration < 50% of circumference
III	Laceration	Laceration > 50% of circumference
IV	Laceration	Full-thickness laceration with extension into the perineum
V	Vascular	Devascularized segment
*Advance one grade for multiple injuries up to grade III.		
Taken from: Moore EE, Cogbill TH, Malangoni MA, Jurkovich GJ, Champion HR, Gennarelli TA, et al: Organ injury scaling II: pancreas, duodenum, small bowel, colon and rectum. J Trauma. 1990;30(11):1427-1429. (34)		
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We recognize that the management of penetrating ano-rectal trauma may not equate well with the management of obstetric injuries. This is exactly why obstetric ano-rectal injuries more amenable to repair without diversion. Obstetric lacerations are low energy injuries with minimal tissue loss and the areas are well supplied with blood immediately post delivery. Furthermore, the trans-anal approach affords excellent exposure in obstetric injuries, abolishing the problem of difficult exposure in the pelvis at laparotomy.

Colostomies come at a price to the patients. There is reduced collagen metabolism and altered mucosal defense in the de-functionalized rectum, thereby impairing healing.<sup>37,38</sup>

Diversion also attenuates mucosal integrity, promotes microbial translocation and increases infectious morbidity.

<sup>39,40</sup> There is added morbidity in 25-29% of patients accompanying colostomy creation and closure.<sup>41,42,43</sup>

Additionally, up to 23% of patients with colostomies for ano-rectal trauma do not have their colostomies closed for up to two years after creation.<sup>44</sup>

## CONCLUSION

Although several advances have been made in the treatment of ano-rectal obstetric injuries, there is still little evidence upon which to base the decision for fecal diversion. The current staging systems seem under-equipped to address this problem.

In the absence of evidence that a colostomy confers any benefit after repair of acute obstetric ano-rectal injuries, we believe that diversion is seldom warranted. More research needs to be done for there to be data on which to make evidence based decisions.

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