

Management of Obstetric Anal Sphincter Injuries at the University Hospital of the West Indies

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ABSTRACT

Up to 6% of women sustain severe perineal lacerations that involve the anal sphincters during vaginal delivery. When they occur, obstetric anal sphincter injuries (OASI) may be accompanied by significant morbidity. Therefore, it is important to detect these injuries promptly and for experienced staff to perform sound repair.

This report retrospectively assesses a series of seven women with OASI who were managed at a tertiary level hospital in Jamaica over a period of 28 months. Unfavourable details of management that may have adversely affected outcomes were sought from the various cases treated.

The incidence of OASI was low (0.2%). There were five third degree and two fourth degree lacerations. After these injuries were repaired, three patients (43%) experienced morbidity such as chronic pelvic pain (43%), anal incontinence (29%), dyspareunia (23%) and recto-vaginal fistulae (14%).

In order to improve the outcomes at this institution, several aspects of current care can be improved. Operative repair of these injuries should be delayed until senior staff is available to supervise OASI repair. Both methods of sphincter repair are reasonable options but the use of rapidly absorbable sutures is not appropriate. Finally, prophylaxis against wound infections can be achieved by administering a single dose of intravenous second or third generation cephalosporin at the time of induction of anaesthesia.

Tratamiento de las Lesiones Obstétricas del Esfínter Anal en el Hospital Universitario de West Indies

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RESUMEN

Hasta el 6% de las mujeres sufren desgarramientos perineales severos que involucran los esfínteres anales durante el parto vaginal. Cuando ocurren, las lesiones obstétricas del esfínter anal (OASI) pueden estar acompañadas por morbilidad significativa. Por consiguiente, es importante descubrir estas lesiones rápidamente, para que el personal experimentado lleve a cabo una buena reparación quirúrgica. Este informe evalúa retrospectivamente una serie de siete mujeres con OASI, tratadas en un hospital de nivel terciario en Jamaica, durante un periodo de 28 meses. Se buscaron detalles desfavorables del tratamiento que puedan haber afectado adversamente la evolución clínica de los varios casos tratados. La incidencia de las OASI fue baja (0.2%). Hubo cinco desgarramientos de tercer grado y dos laceraciones de cuarto grado. Después de que estas lesiones fueron reparadas, tres pacientes (43%) experimentaron morbilidad, tal como dolor pélvico crónico (43%), incontinencia anal (29%), dispareunia (23%) y fístulas recto-vaginales (14%). A fin de mejorar los resultados clínicos en esta institución, pueden mejorarse varios aspectos del cuidado actual. La reparación operativa de estas lesiones debe retardarse hasta que esté disponible un personal de experiencia para supervisar la reparación de la OASI. Ambos métodos de reparación del esfínter constituyen opciones razonables, pero el uso de suturas rápidamente absorbibles no es apropiado. Finalmente, puede lograrse la

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profilaxis contra las infecciones de las heridas, administrando una sola dosis de cefalosporina intravenosa de segunda o tercera generación en el momento de inducción de la anestesia.

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INTRODUCTION

Severe perineal lacerations that involve the anal sphincters occur in 0.5% (1, 2) to 6% (3) of women during vaginal delivery. Almost 50% of these women experience significant morbidity that includes chronic pelvic pain, dyspareunia, anal incontinence and recto-vaginal fistulae (1, 2).

To the best of our knowledge, there are no reports on the outcomes of management of obstetric anal sphincter injuries (OASI) from the Caribbean. This paper assesses the outcomes of management of OASI at a tertiary referral hospital in Jamaica in order to identify unfavourable details of management that may adversely affect outcomes in these patients.

SUBJECTS AND METHODS

The University Hospital of the West Indies (UHWI) is a tertiary obstetric referral centre in Jamaica. Certified midwives supervise all deliveries and obstetric residents attend deliveries when they are complicated.

Medio-lateral episiotomies were performed selectively in order to shorten the second stage of labour, for breech presentations and instrument-assisted deliveries. After vaginal delivery, all women had perineal examination performed by a midwife. When detected, perineal lacerations were repaired by obstetric or general surgical staff at different levels of training.

The Labour Ward records were retrospectively analyzed over a period of 28 months from January 2004 to April 2006. The hospital records of women who sustained OASI were retrieved. Data were extracted and entered in a Microsoft Excel® (Microsoft Office for Mac OS X) worksheet. Information collected included patient demographics, details of delivery, severity of OASI, details of perineal repair, duration of antibiotic usage and the presence of complications.

After obtaining verbal consent, the women were reassessed either at follow-up clinic appointments or by telephone interview. The women were questioned about symptoms in the immediate postoperative period and at the time of follow-up assessment. Specifically, they were questioned about the presence of chronic pelvic pain, dyspareunia, perineal infections, recto-vaginal fistulae and the presence of faecal incontinence.

Faecal incontinence was defined as the inability to retain stool or gas and expel it at a proper time and place (4). The Cleveland Clinic Incontinence Score (CCIS) was used to evaluate the severity of faecal incontinence (Appendix 1). A recent consensus statement by 20 coloproctology experts recommended the CCIS for continence evaluation because it is practical, easy to interpret and also evaluates lifestyle

Appendix 1: Cleveland Clinic Incontinence Score

	Gas	Liquid stool	Solid stool	Use of pads
Occasionally	1	4	7	1
> 1 per week	2	5	8	2
Daily	3	6	9	3

Cleveland Clinic Incontinence Index (IC):

CCIS	0	Perfect continence
CCIS	1-7	Good continence
CCIS	8-14	Moderate incontinence
CCIS	15-20	Severe incontinence
CCIS	>20	Completely incontinent

Presented in 2002 at the Seventh International Meeting of Coloproctology. Taken From: Altomare DF, Baeten CGML, Bazzocchi G, Carriero A, McColl E, Duschka L, et al. Consensus Conference On Treatment Options for Faecal Incontinence. Seventh International Meeting of Coloproctology: http://www.colorep.it/Rivista%20CEC/consensus_conference.htm⁽⁴⁾

alterations (4). Four parameters are individually evaluated to determine the CCIS and patients with a CCIS score >7 are considered to have faecal incontinence.

RESULTS

There were 3957 vaginal deliveries at UHWI over the study period. Eight (0.2%) of these women sustained OASI. Hospital records for one patient could not be retrieved. Seven patients were analyzed and they are summarized in Table 1.

These women delivered infants at term with gestational ages ranging from 38⁺³ to 40⁺² weeks (mean: 39⁺⁴ +/-5 days). The infants ranged in birthweight from 2.9 Kg to 3.72 Kg (mean +/-SD: 3.28 +/-0.32) and in head circumference from 32 cm to 38.5 cm (mean +/-SD: 35 +/- 2.47).

The operator experience varied widely. One patient with a fourth degree OASI had repair performed by general surgical senior resident staff. The remaining patients had OASI repairs performed by obstetric residents at different levels of training. These were performed by obstetric junior resident staff in three cases and by senior residents in three cases.

The anal sphincter was repaired by end-to-end technique in six cases. One patient had overlapping anal sphincter repair with non-absorbable polypropylene (Prolene®) mattress sutures. Three patients had end-to-end repair with absorbable chromic catgut sutures and two patients had end-to-end repair with absorbable polyglactin (Vicryl®) sutures. There was no specification of suture material in one case.

Rapidly absorbable (chromic catgut or Vicryl®) sutures were used in OASI repair in both patients with anal incontinence, both patients with dyspareunia and all three

Table 1: Clinical characteristics of women with obstetric anal sphincter injury at the University Hospital of the West Indies in Jamaica

Case No	Age in Yrs	Parity	Gestation Period (Wk)	Delivery	Birth Weight (Kg)	Placental Weight (Kg)	Infant Head Circumference (cm)	Infant Crown-heel Length (cm)	Infant Gender	Episiotomy Performed	Degree of Perineal Tear	Anaesthesia for OASI Repair	Staff Level Performing Repair	Suture Material for Sphincter Repair	Sphincter Repair Technique	Antibiotic Utility	Complications after OASI Repair	CCIS after operation and at follow-up
1	31	0	40	SVD	3.72	590	37.5	56	Female	Yes	4 th	Local 1% Lidocaine	Obstetric Junior Resident	1/0 Chromic	End-to-End	Augmentin x 1/52	Faecal incontinence; Dyspareunia; Chronic pelvic pain; Recto-vaginal fistula; Perineal cellulitis	21-9
2	26	1	38 +3	SVD	3.04	550	32	49	Female	No	3 rd	Local 1% Lidocaine	Obstetric Junior Resident	Vicryl Rapide	End-to-End	Augmentin x 4/7	Chronic pelvic pain	2-0
3	26	0	38 +4	SVD	3.07	620	36	51	Male	No	3 rd	Regional 1% Lidocaine	Obstetric Senior Resident	0 Chromic	End-to-End	Augmentin x 10/7	Faecal incontinence; Dyspareunia; Chronic pelvic pain	8-0
4	23	0	40	SVD	3.2	830	35	51	Male	Yes	3 rd	Local 1% Lidocaine	Obstetric Junior Resident	Not Specified	End-to-End	None	None	3-0
5	22	0	40	SVD	2.9	570	33	49.5	Female	No	3 rd	General anaesthesia	Obstetric Senior Resident	2/0 Chromic	End-to-End	None	None	1-0
6	31	3	39 +3	SVD	3.66	750	38.5	47	Female	No	3 rd	Local 1% Lidocaine	Obstetric Senior Resident	1/0 Vicryl	End-to-End	Augmentin x 1/52	None	0-0
7	24	0	4 0+2	SVD	3.4	N/A	33	54	Female	Yes	4 th	General anaesthesia	Surgical Senior Resident	1/0 Prolene	Overlapping	Single dose Zinacef and Flagyl	None	0-0
8	28	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Abbreviations: CCIS = Cleveland Clinic Incontinence Score; N/A = Information not available; SVD = Spontaneous vaginal delivery; SACCC = Same admission colostomy closure; HC = Head Circumference; CHL = Crown-Heel Length

patients with chronic pelvic pain. There were no identifiable complications in the patient who had repair with non-absorbable polypropylene sutures.

There was a marked difference in clinical practice with respect to antibiotic use. No antibiotics were administered in two patients. One patient had a single prophylactic dose of intravenous cefuroxime at induction of anaesthesia. The remaining patients were administered amoxicillin-clavulanate for a mean duration of six days and a range from 4-10 days. In these patients, there were no identifiable infective sources that otherwise required antibiotic therapy. One patient developed a recto-vaginal fistula and the remaining six patients experienced no infectious morbidity.

DISCUSSION

In obstetric practice, the anal sphincters may be injured at the time of vaginal delivery. These injuries are classified as third degree lacerations when the external anal sphincters (EAS) are lacerated and fourth degree when the ano-rectal mucosa is breached (5, 6, 7).

These are uncommon injuries that are reported to occur after 0.5% (1, 2) to 6% (3) of vaginal deliveries although occult OASI has been reported in a further 35% of primiparous women when evaluated with endo-anal ultrasound (8, 9). The prevalence was found to be low at the UHWI where 0.2% of patients had OASI after vaginal delivery.

It is interesting that although episiotomy is used as a prophylactic measure to reduce the severity of perineal lacerations, both patients with fourth degree OASI had episiotomies performed. We are unable to determine from these data whether episiotomy significantly reduces the incidence of these injuries, but this deserves further study since the morbidity is reported to be disproportionately high in patients with fourth degree lacerations (6).

After OASI repair, 43% of women experienced morbidity that included chronic pelvic pain (43%), dyspareunia (29%), faecal incontinence (29%), perineal cellulitis (14%) and a recto-vaginal fistula (14%). The incidence of morbidity is relatively high but is comparable to accepted figures that are reported to approach 50% in the international literature (2, 3, 5, 6, 10-13).

The reason for the high morbidity after primary repair is unclear but several factors have been proffered as contributors including under-diagnosis, underestimation of injury severity and poor understanding of perineal anatomy (5, 14). We were unable to assess the contribution of these parameters in this study.

Deficiency in the level of training or operator expertise has also been cited as a contributing cause (5, 14). The sample size in this study is too small to determine whether operator training significantly contributes to the incidence of complications. The potential to develop disastrous complications after inadequate repair carries clinical significance. Since these are not dire emergencies that mandate immediate repair, they can probably be delayed until experienced senior staff is available to supervise OASI repair.

International reports give a range of 20% (1, 6, and 13) to 50% (15) of early incontinence after OASI, despite early diagnosis and repair. The actual incidence of early incontinence after OASI may be even higher than is actually reported because many patients do not seek medical attention because of embarrassment (16, 17).

Faecal continence depends upon the integrity of the EAS. Both of the patients who developed incontinence had the EAS repaired with rapidly absorbable sutures. But absorbable sutures are inadequate for EAS repair because they are absorbed before the muscle has had time to heal (5–7, 18–20). Non-absorbable or slow-absorbing suture material has been recommended as a better choice for EAS reconstruction (5, 6). Despite this, only one patient in this series had EAS repair with non-absorbable sutures.

The best technique for repair remains controversial. Six patients in this series had EAS reconstruction using the traditional end-to-end repair while one patient had overlapping EAS repair. Although both methods are recognized to be appropriate for EAS repair, the overlap technique is being used increasingly because it theoretically results in more tissue contact after repair and better long term healing (5, 6, 19, 21).

There was a marked disparity in the use of antibiotics in patients with OASI in this series but there was no apparent difference in infectious morbidity related to treatment duration. Only one patient had perineal cellulitis secondary to a recto-vaginal fistula and prophylactic antibiotics are unlikely to have prevented this complication. A single intravenous dose of a second or third generation cephalosporin at the induction of anaesthesia has previously been recommended as sufficient prophylaxis against wound infections (6).

In summary, although the incidence of OASI in this series is low, the resultant morbidity is high. In order to improve these outcomes, several aspects of current care can be improved. Operative repair of these injuries should be delayed until senior staff is available to supervise OASI repair. Both methods of sphincter repair are reasonable options but the use of rapidly absorbable sutures is not appropriate. Only slow-absorbing or non-absorbable sutures should be utilized for EAS repair. Finally, prophylaxis against wound infections can be achieved by administering a single dose of intravenous second or third generation cephalosporin at the time of induction of anaesthesia.

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