



UK survey of colorectal surgeons on the management of acute obstetric anal sphincter injuries

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Abstract

Aim: The role of colorectal surgeons in the management of acute obstetric anal sphincter injury (OASI) is an ongoing debate. Their expertise in operating in the anorectal region lends itself to assisting in OASI repair. The aim of this study was to establish the current involvement and recommended management of acute OASI by colorectal surgeons.

Method: An online survey of consultant colorectal surgeons was sent to members of the Pelvic Floor Society to assess current involvement in acute OASI management and repair.

Results: Forty completed surveys were collated and analysed. Sixty-five per cent of respondents had seen an acute OASI since being a consultant and 50% stated they were involved in the repair of OASI less than once per year. 37.5% felt that a de-functioning stoma was still necessary sometimes. Many agreed with current guidelines for OASI repair in terms of antibiotics, laxatives and follow-up.

Conclusions: Colorectal surgeons have varied opinions on the management of OASI. We suggest that multidisciplinary training of obstetricians and colorectal surgeons could lead to more collaboration regarding the management of women with acute OASI.

KEYWORDS

colorectal surgeon, obstetric anal sphincter injury, survey

INTRODUCTION

Misdiagnosis and incorrect classification of perineal tears are more likely to lead to symptoms that have a significant impact on quality of life [1, 2]. A national practice survey in 2002 found that 60% of coloproctologists had no involvement with acute obstetric anal sphincter injuries (OASIs) [3]. When asked about the management of OASI, 30% of coloproctologists stated they would recommend a covering colostomy for OASI, whereas none of the obstetricians in that survey would request a colostomy for an acute OASI [3].

The success of a primary repair of OASI is essential in maintaining faecal continence and improving outcomes for women [4]. It is known that secondary repair achieves poor results long term when the severity of incontinence is assessed [5]. Kirss et al. studied factors associated with a failed primary repair and found a statistically significant correlation between a successful repair and a more experienced surgeon [6].

Traditionally repair of an OASI, the most severe form of perineal trauma, is carried out by an obstetrician. Often by a trainee who has been deemed competent or is under senior supervision. In 2002, consultant coloproctologists performed significantly fewer OASI repairs than obstetric consultants and trainees [3]. There has been historical debate about the colorectal surgeon's role in the management of acute OASI [7–10]. We aim to investigate the current involvement of colorectal surgeons. In the past there was some suggestion that outcomes may be improved if the repair is carried out by or in collaboration with a colorectal surgeon [7, 10].

A study in 2010 by McNicol et al. looked at functional outcomes for patients when the repair of acute OASI was conducted by an experienced colorectal surgeon [8]. At 2 months' follow-up, 86% had no symptoms of anal incontinence. Since this study, obstetricians have been trained and have adopted repair techniques (described as the double overlapped technique) used by colorectal surgeons, and

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referrals to the colorectal team for a repair of OASI have declined significantly [8].

A similar survey to ours has been conducted in Australia and New Zealand asking colorectal surgeons about their experience with acute OASI. 60.6% of the 94 surgeons reported low exposure to OASIs [11]. It was reported that colorectal surgeons were more commonly involved with OASI patients in the non-acute setting [11].

This survey aims to define the current involvement and treatment recommendations of colorectal surgeons in the management of acute OASI in the UK. Given their expertise in operating in this area, their opinion on the management of acute OASI is important to ensure the best possible outcomes.

METHODS

This is a descriptive, cross-sectional study. We adapted the survey of colorectal surgeons used in 2002 by Fernando et al. [3], as it provided a validated, published survey instrument to compare our results and identify any change in practice over a 20-year period. The survey was adapted and tested in Survey Monkey (www.surveymonkey.com), which is a secure online application for building and managing surveys. The project was approved by the Health Research Authority (IRAS project ID: 284740; REC ref. 20/HRA/3250).

The Pelvic Floor Society (an affiliate of the Association of Coloproctology of Great Britain and Ireland) sent an email with a link to the questionnaire to all members inviting all consultant colorectal surgeons to participate ($n=174$). The email gave details of the investigator and the purpose of and information about the study. The link directed the responder to the survey so that participants could fill it out online, anonymously. By clicking the link to complete the survey this implied informed consent to take part. No personal information was stored about participants and no incentives were used. Reminders were sent monthly, and the survey was open for 3 months. This provides a convenience sample. The survey was tested by 10 participants before distribution.

The survey consisted of 32 questions, which were displayed as two or three questions per page, with an estimated time of 8 min to complete. It used adaptive questioning, based on individual responses. Most questions (29 questions) were closed questions with multiple-choice options to select answers. The three open questions included two asking for a number (years practising as a consultant and number of OASI seen) and one asking for 'Any other comments'. All questions gave an option of 'Do not know' or 'Other' to allow for alternative answers. Responders were able to go back and review or change answers until they submitted the completed survey.

The inclusion criteria for this survey were implied agreement to participate by default if they returned the survey and currently practising in the UK. The exclusion criteria were those not currently performing clinical work in the UK and those who terminated the survey early (which were reviewed after submission). IP address was used to ensure non-duplicate responses; cookies were not used.

What does this paper add to the literature?

The paper establishes the current involvement of colorectal surgeons in the management of acute OASIs and their suggested management options and compares this to similar results from 20 years ago.

Given a population size of 174 UK colorectal consultants registered with the Pelvic Floor Society with an expected 15% response rate, this gives a sample of 26 respondents. Sample sizes suggested for qualitative research are 20–30; therefore a sample size of 26 is within this target [12].

The data were collected and collated in Survey Monkey and analysed.

RESULTS

There were a total of 50 responses. After exclusions, there were 40 completed surveys giving a response rate of 23%. No duplicate IP addresses were identified.

Table 1 shows the demographics of the respondents. Most (50%) had been a consultant for less than 10 years and 72.5% had a special interest in the pelvic floor. Twenty-six (65%) respondents had seen acute OASI since working as a consultant, and 77% had only seen one to five injuries during that time.

When respondents were asked how often they were involved in OASI repair 50% stated 'less than once a year', one stated 'once

TABLE 1 Surgeon demographics.

Number of years working as a consultant colorectal surgeon	Number of respondents (%) (total 40)
<10	20 (50)
11–20	18 (45)
21–30	2 (5)
Special interest	
Pelvic floor	29 (72.5)
Anal incontinence	4 (10)
Prolapse	1 (2.5)
Other	1 (2.5)
None	5 (12.5)
Number of OASIs seen since consultant post	Respondents (%) (total 26)
1–5	20 (77)
6–10	5 (19.2)
>10	1 (3.8)

Abbreviation: OASI, obstetric anal sphincter injury.

per year', four (10%) stated 'two per year' and 15 (37.5%) did not respond.

Table 2 looks at the timing, preferred surgeon and technique for repair. Nearly all respondents agreed that OASI should be repaired immediately or within 24 h (92.5%) without bowel preparation (90%).

TABLE 2 Repair of OASIs and perioperative care.

Repair of OASIs	Number of respondents (total 40)
Timing	
Immediately	22 (55)
Within 24 h	15 (37.5)
24–48 h	1 (2.5)
More than 48 h	0 (0)
Do not know	2 (5)
Should bowel preparation be used?	
Yes—Full preparation	2 (5)
Yes—Enema	1 (2.5)
Unsure	1 (2.5)
No	36 (90)
Who should repair?	
Obstetrician	22 (55)
Colorectal surgeon	6 (15)
Combined obstetrician and colorectal surgeon	11 (27.5)
Unsure	1 (2.5)
Minimum grade of surgeon doing repair	
Consultant	22 (55)
Senior Registrar	16 (40)
Senior House Officer	1 (2.5)
Other—Anyone with supervision	1 (2.5)
External anal sphincter mobilization prior to repair	
Yes—Always	6 (15)
Yes—Only when required	26 (65)
No	7 (17.5)
Do not know	1 (2.5)
External anal sphincter repair in full-thickness tear	
Overlapping	28 (70)
End-to-end	7 (25)
Overlapping or end-to-end	5 (12.5)
De-functioning stoma may be necessary	
Yes	9 (22.5)
No	24 (60)
Do not know	1 (2.5)
Other (sometimes)	6 (15)
Intra-operative antibiotics?	
Yes	39 (97.5)
No	1 (2.5)

Abbreviation: OASI, obstetric anal sphincter injury.

Fifty-five per cent stated that obstetricians should perform the repair and 27.5% stated it should be obstetricians and colorectal surgeons in collaboration. Ninety-five per cent stated that the minimum grade of surgeon should be a consultant (55%) or senior registrar (40%). Fifteen (37.5%) respondents stated 'yes' or 'sometimes' to the statement 'A de-functioning stoma may be necessary for an acute OASI'. When asked which cases may need a de-functioning stoma three (7.5%) respondents stated 'Every case', four (10%) stated 'Only when the anorectal mucosa is involved', four (10%) stated 'In rare extensive or complex injuries' and five stated 'Other' (24 left the question blank).

When asked about external anal sphincter (EAS) repair in full-thickness injuries 70% stated they would use an overlapping technique, 17.5% stated end-to-end and 12.5% stated either end-to-end or overlapping.

Table 3 shows the sutures selected to repair each layer of an OASI. Most respondents chose sutures that are in line with recommendations by the Royal College of Obstetricians and Gynaecologists (RCOG) in the Green-top Guideline for the management of third- and fourth-degree tears [13].

Table 4 looks at the postoperative management of OASI. 62.5% stated they would give routine antibiotics postoperatively. Four (10%) respondents stated they would restrict dietary intake after the repair of acute OASI. One stated 'restrict for <24 h', one stated 'restrict for >72 h', one stated 'free fluids for 5–10 days', and one stated 'nasogastric feed for one week'. Nearly all (92.5%) stated they would give laxatives after repair, with osmotic laxatives (90%) being most popular, for 7–14 days (52.5%).

In terms of follow-up 38 (95%) respondents stated that women should be followed up after acute OASI. Nineteen (47.5%) stated that women should be followed up for more than 6 months and 17 (42.5%) stated up to 6 months' follow-up. Sixteen (40%) stated this should be a joint obstetric and colorectal follow-up; others stated just obstetrics [5], just colorectal [8], a specially trained midwife [3] or a physio [2].

When asked about what should be included in the follow-up 15 (37.5%) stated to only do investigations if the patient is symptomatic, 35 (87.5%) stated to do a 'history and examination', 23 (57.5%) included routine endo-anal ultrasound and 15 (37.5%) included anal manometry. One stated to include nerve conduction studies.

When asked about future deliveries for women who have had OASI, 23 (57.5%) stated they should have an elective caesarean section, eight (20%) stated it would depend on symptoms and investigations and four (10%) respondents stated that it is a patient's choice.

Twenty-four (60%) respondents stated that colorectal surgeons should receive training on the diagnosis and repair of acute OASI, and 16 (40%) have already supervised or trained obstetricians in the repair of anal sphincters. All respondents stated that training in the management of acute OASI is important for obstetricians.

DISCUSSION

This paper is a survey of colorectal surgeons regarding their involvement and management of acute OASI repair. The results show that

TABLE 3 Suturing of torn structures.

Suture/tissue	Polyglactin (Vicryl/Velosorb), %	Polydioxane (PDS), %	Polypropylene (Prolene), %	Polyglecaprone (Monocryl/Caprosyn), %	Other (%)	4-0 (%)	3-0 (%)	2-0 (%)	0	1	Do not know
Anal mucosa	31 (77.5)	8 (20)	0	1 (2.5)	0	2 (5)	11 (27.5)	8 (20)			
Internal anal sphincter	12 (30)	26 (65)	0	1 (2.5)	1 (2.5)		12 (30)	9 (22.5)			
External anal sphincter	6 (15)	32 (80)	1 (2.5)				9 (22.5)	11 (27.5)	1 (2.5)		
Perineal muscle	15 (37.5)	23 (57.5)	1 (2.5)				7 (17.5)	11 (27.5)	1 (2.5)	1 (2.5)	1 (2.5)
Skin	21 (52.5)	1 (2.5)	4 (10)	14 (35)		2 (5)	14 (25)	3 (7.5)			

Note: Bold denotes recommended sutures in the RCOG Green-top Guideline [13].

Abbreviation: PDS, polydioxanone suture.

TABLE 4 Postoperative management of OASI.

Management of OASI	Number of respondents (total 40) (%)
Routine postoperative antibiotics?	
Yes	25 (62.5)
No	14 (35)
Do not know	1 (2.5)
Restrict diet after repair?	
Yes	4 (10)
No	36 (90)
Laxatives after repair? (Tick all that apply)	
Yes	37 (92.5)
Osmotic (lactulose)	36 (90)
Bulk forming (Fybogel)	5 (12.5)
Softener (docusate)	4 (10)
No	3 (7.5)
How long would you give laxatives for?	
<7 days	1 (2.5)
7-14 days	21 (52.5)
>14 days	15 (37.5)
Left blank	3 (7.5)
Follow-up after OASI?	
Yes	38 (95)
No	1 (2.5)
Do not know	1 (2.5)
Included in follow-up? (Tick all that apply)	
History and examination	35 (87.5)
Routine endo-anal ultrasound	23 (57.5)
Routine endo-anal manometry	15 (37.5)
Nerve conduction studies	1 (2.5)
Investigations only if symptomatic	15 (37.5)
Future deliveries?	
Elective caesarean section	23 (57.5)
Depends on symptoms	8 (20)
Patient choice	4 (10)
Do not know	2 (5)
No special management	1 (2.5)
Left blanks	2 (5)
Should colorectal surgeons be trained in acute OASI?	
Yes	28 (70)
No	5 (12.5)
Do not know	3 (7.5)
Left blank	4 (10)

Abbreviation: OASI, obstetric anal sphincter injury.

most colorectal surgeons are infrequently involved in the repair of acute OASI and 55% believe that obstetricians should repair acute OASIs without colorectal involvement.

Compared to the previous survey of colorectal surgeons conducted in 2002 [3] the numbers are similar how often they are involved in the primary repair of OASI (80% from zero to five times per year compared to 62.5% two or fewer per year in this survey) [3]. Surveys in other countries have also reported that colorectal surgeons are not often involved in the management of acute OASI. In a survey in Australia and New Zealand, 91.4% stated that they were not routinely called to perform a primary repair of OASIs [11]. A Finnish study in 2018 of 325 OASI repairs found that only 8.1% were repaired by colorectal surgeons [14]. Our survey found that only 15% of respondents stated that colorectal surgeons should repair OASIs. If they are rarely involved in acute repair their experience and practice will be minimal, so is there still a role for colorectal involvement? The RCOG states that the repair should be carried out by 'appropriately trained practitioners' [13]. Given obstetricians' experience and training in acute OASI identification and repair, perhaps they are better suited to repair acute OASIs. A colorectal opinion should be sought when there is a large rectal mucosal tear (more than 7 cm) or wound faecal soiling. Obstetricians tend to seek help from colorectal surgeons if they feel uncomfortable repairing such injuries, especially buttonhole tears of the rectum [15]. All women with rectal injuries (fourth degree and rectal buttonhole tears) should be informed about the benefits and risks of a colostomy and the less than 5% risk of requiring a stoma if the wound breaks down and a rectovaginal fistula develops [16–18]. This may be a particular group of patients who would benefit from collaboration with colorectal surgeons, given the rarity of these cases and therefore relatively less experience that obstetricians have [15, 19].

Other recommendations for the repair of OASIs are defined in the RCOG Green-top Guideline [13]. Most respondents to this survey agreed with these guidelines in terms of the surgical technique, use of intra-operative antibiotics and the type of sutures to use for different layers. There are still some who stated that bowel preparation should be used; however, it was not specified in which circumstances this would be necessary. This is not mentioned as a recommendation by the RCOG [13] and is not used in practice prior to acute OASI repair. It was interesting to see that 10% of colorectal surgeons impose dietary restrictions after repair. However, a randomized controlled trial [20] has shown that women in the laxative group had a significantly earlier and less painful bowel motion, and earlier postnatal discharge. There was no difference in the symptomatic or functional outcome of repair between the laxative use group and those who were constipated for 3 days. Furthermore, bowel confinement has been shown to be unnecessary after anorectal reconstructive surgery [21].

When asked about a de-functioning stoma, 37.5% still stated that it may be necessary in some cases. This is similar to Fernando et al.'s survey where 30% stated a covering colostomy was indicated for an OASI repair [3]. The most probable reason for this could be that colorectal surgeons use stomas much more frequently when encountering anorectal injuries in the emergency setting and consider acute OASIs to be similar. There has been a change in education

and training in correct diagnosis and repair for obstetric doctors in the last 20 years since the introduction of many hands-on perineal trauma courses [22]. Training for colorectal surgeons in this area is less common or non-existent. All respondents agreed that obstetricians need formal training in this area, and 70% also felt that colorectal surgeons would benefit from training.

When thinking about repair technique we asked about repair of the EAS with overlap or end-to-end technique for full-thickness tears. A Cochrane review found no significant difference in outcomes between overlap and end-to-end repair [23]. It is interesting that 70% of respondents stated they would use an overlapping technique; perhaps they believe this will give a stronger repair.

With the experience that colorectal surgeons undoubtedly have in anorectal anatomy, their assistance could be beneficial during difficult cases of OASI repair. The focus of improved OASI care in the last 20 years has been the education of obstetricians and midwives, which has resulted in an improvement in knowledge of OASI [19, 24]. We suggest that collaborative training of obstetricians and colorectal surgeons could lead to more collaborative, specially selected cases and possibly better outcomes, but this remains to be proven.

Although broad-spectrum intra-operative and postoperative antibiotics are recommended after OASI repair by the RCOG [13] only 62.5% of respondents stated they would give routine antibiotics. While there is evidence regarding the benefit of using intra-operative antibiotics [25] and most colorectal surgeons concur, no randomized trials have been conducted regarding routine postoperative antibiotics. However, the RCOG is not the only national guideline to recommend it [26], but given the operative site there is a high risk of infection from contamination and therefore this practice should be based on the advice of local microbiologists.

According to the RCOG, follow-up for women who have suffered from OASI should take place 6–12 weeks after delivery by a clinician with a specialist interest in OASI [13]. Forty per cent of our participants stated they felt a joint obstetric and colorectal follow-up would be best. Some also stated a physiotherapist or midwife could conduct this follow-up. We recommend that follow-up in a dedicated multidisciplinary clinic [16], where possible, would ensure women are reviewed thoroughly, in terms of their OASI recovery and pelvic floor assessment. Women who require ongoing input could receive more targeted treatment with involvement from colorectal surgeons. Assessment with endo-anal scans and anal manometry, particularly as a one-stop service, is being used increasingly [16] and provides an opportunity for debriefing, assessing underdiagnosis [2], detecting overdiagnosis [27] and counselling women regarding the management of subsequent pregnancy [18]. The majority of colorectal surgeons in this study, and the survey by Fernando et al. [3], believe that women with a previous OASI should deliver by caesarean section but it has been shown that more than 70% can undergo vaginal delivery without developing anal incontinence symptoms or new sphincter defects [18, 28, 29]. Training for colorectal surgeons in the management of acute OASI could be beneficial when reviewing patients in follow-up.

The strengths of this study are that it is the most recent survey of colorectal surgeons in the UK allowing for comparative data in colorectal practice over a period of 20 years [3]. The Checklist for Reporting Results of Internet E-Surveys (CHERRIES) tool was used for reporting the survey [30].

Although it is limited by a small sample of a specialized group of colorectal surgeons, the response would be considered good for an online survey. A big limitation of this study is selection bias given that all respondents were members of the Pelvic Floor Society, and therefore the results are unlikely to be generalizable to all colorectal surgeons in the UK, given their particular interest and expertise in this area. It is also possible that when answering these questions the respondents were extrapolating their experience with secondary anal sphincter repairs rather than an acute OASI, which they have limited experience with. Finally, given that only IP addresses were used to check duplicates this may have enabled someone to submit more than one response from different locations so this gives a possibility of duplicate responses.

CONCLUSIONS

In conclusion, colorectal surgeons are not often involved in the repair of acute OASIs. We found that respondents mostly agreed with the current UK recommendations about the management of OASI, including repair techniques and follow-up. Although most acute OASI can be managed by obstetricians there is still a place for collaborative work with colorectal surgeons in some cases, given their experience in bowel repair, secondary anal sphincter repair and de-functioning, if necessary. These cases could include isolated rectal buttonhole tears and large fourth-degree tears. We suggest that multidisciplinary training, in OASI, for obstetricians and colorectal surgeons could lead to a more collaborative approach to the management of women with OASI.

AUTHOR CONTRIBUTIONS

Abdul H. Sultan: Conceptualization; methodology; writing – review and editing; supervision. **Joanna C. Roper:** Conceptualization; methodology; formal analysis; data curation; writing – original draft. **Ranee Thakar:** Conceptualization; methodology; supervision; writing – review and editing.

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CONFLICT OF INTEREST STATEMENT

Ranee Thakar is the current president of the Royal College of Obstetricians and Gynaecologists.

DATA AVAILABILITY STATEMENT

The data that support the findings of this study are available from the corresponding author upon reasonable request.

ETHICS STATEMENT

HRA approval (IRAS project ID: 284740; REC ref. 20/HRA/3250). The research did not receive any specific grant from funding agencies in the public, commercial or not-for-profit sectors.

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