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Management of obstetrical injuries to the anal sphincter: A survey of French current practice and perceptions according to the specialties

Short title: Management of obstetrical anal sphincter injuries

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Summary

Aim of the study: To conduct a survey of current practice in the management of obstetrical anal sphincter injuries (OASI) and to compare short, medium and long-term practices according to the specialty of the surgeon.

Patients and methods: A 50-item questionnaire was addressed by mail to various specialists via the national learned societies. The questionnaire was addressed only to practitioners who currently managed OASI in their practice.

Results: Of the 135 healthcare professionals who responded, 57 were sub-specialists in ano-rectal surgery (42.2%) and 78 were obstetrical or gynecological specialists (OB-GYN) (57.8%). Management in the acute period after OASI was similar among the specialties and 50% of the practitioners did not perform suture repair of the internal sphincter. Furthermore, few gynecological specialists recommended systematic consultation with an ano-rectal specialist during acute management.

In the medium term, ano-rectal specialists were more likely to explore gastrointestinal symptoms, either clinically or through para-clinical studies. However, these studies did not systematically lead to interventional management in the absence of consensus, particularly for medium-term sphincter repair. In addition, 25% of practitioners recommended that patients undergo systematic delivery by caesarean section for further pregnancies after OASI.

In the long term (> 12 months), there were substantial differences in management of OASI not only between specialties but also within the same specialty.

Conclusion: The various specialists should coordinate to propose multidisciplinary recommendations on the management of OASI.

Key words: Obstetric anal sphincter injury, Anal incontinence, Management, Caesarean section

Introduction

Grades III and IV obstetrical perineal tears are defined as obstetrical anal sphincter injuries (OASI); they occur in around 0.8% of deliveries in France [1], or 6000 women per year. These obstetrical lesions correspond respectively to a tear of the external sphincter, either isolated or associated with a rupture of the internal sphincter and the mucosa of the anal canal [2]. Early management of these lesions is critical since failure to repair a sphincteric lesion is correlated with an increased long-term risk of anal incontinence (AI) [3]. Thus, at 15-25 years after OASI, 61% of women present with AI *versus* only 22% of women without OASI [4].

The initial management of OASI is well codified and the National College of French Gynecologists and Obstetricians (CNGOF) has issued recommendations, particularly recommending layer-by-layer suture repair of the perineum [5]. The performance of sphincter repair can be delayed 8 to 12 hours, allowing time for an experienced operator to intervene, without affecting the functional prognosis at one year [6]. There is much less consensus regarding the medium-term management of symptomatic or non-symptomatic OASI even though this may affect the long-term functional prognosis [7]. This lack of consensus is most likely due to the fact that the different specialists who manage OASI often intervene at different times in this clinical setting.

The objective of this study was to conduct a survey of management practices for OASI and to compare the short, medium and long-term approaches, according to whether the care provider was a specialist in ano-rectal surgery or OB-GYN.

Material and methods

A questionnaire was sent to obstetrician-gynecologists *via* the French National College of Obstetrician Gynecologists (CNGOF), to colo-proctologists and colo-rectal surgeons *via* the French National Society of Colo-Proctology (SNFCP) and the Proctology Research Group (GREP), to gastro-intestinal and general surgeons *via* the French Association of Surgery (AFC) and to midwives *via* the

Collège National des Sages-Femmes de France (CNSF) between January 15 and April 1, 2020. This letter provided a link to a Google Form® survey. Several reminders were sent over the period (1 to 3 reminders depending on the learned society). Only practitioners who managed OASI in the short, medium or long term were asked to respond to the questionnaire.

The questionnaire consisted of 50 questions, five of which specified the specialty, age, sex, mode and region of the practitioner's activity. The questionnaire (Annex 1) was broken down into three parts depending on when care took place (short term, medium term, long term). Practitioners were asked to respond only if they took charge of OASI within a given time. Responses to the questionnaire were anonymous.

Short-term management of OASI was defined by repair within 21 days of childbirth, long-term management was defined by management occurring after six months post-partum and medium-term management was defined as occurring during the interim (21 days to 6 months).

The third portion of the questionnaire (long-term) asked practitioners about their management of OASI discovered in the long term; most of the questions were left Open-ended.

The objective of the statistical analysis was to compare the practices and opinions of practitioners according to their specialization in the obstetrical sector (gynecologists-obstetricians, gynecological surgeons, midwives) and in the digestive sector (proctologists, gastroenterologists, digestive surgeons, colorectal surgeons, general surgeons). Results were expressed as median (interquartile interval range (IQI)) or percentage and were compared using nonparametric tests (Fischer test and U Mann Whitney test).

Results

General results

One hundred and thirty-five specialists from the relevant learned societies responded to the survey, 57 were specialists in ano-rectal surgery (42.2%) and

78 were specialists in childbirth (57.8%). Out of approximately 5,300 obstetrician gynecologists, 7,000 midwives, 1,130 visceral surgeons and 3,595 hepato-gastroenterologists listed in France, only those practitioners who managed OASI were asked to respond to the questionnaire. The characteristics of the responders are reported in Table 1. Forty-three were anal incontinence specialists (33.1%) while 87 were not (66.9%).

Depending on the practice setting, cases of Grade III OASI was treated by an obstetrician-gynecologist in 101 cases (74.8%), a digestive surgeon in 12 cases (24.5%) or a proctologist in 1 case (0.7%). Only one patient was transferred to a referral center (0.7%). Cases of Grade IV OASI were treated by an OB-GYN in 77 cases (57%), a digestive surgeon in 31 cases (23%) and a proctologist in six cases (4.4%), and one patient was transferred to a referral center (0.7%).

Early management

During the acute period, 16.7% of OB-GYN specialists did not manage OASI at all, while half of the ano-rectal specialists did not manage OASI acutely (50.9%) (Table 2).

There was no real difference in short-term management between specialists apart from a longer duration of antibiotic coverage by the OB-GYN specialists (15 days; IQI: 10-37.5) than by digestive specialists (7 days; IQI: 5-10) ($p < 0.0001$). In addition, digestive surgeons cautioned against anal sex for a median of 60 days (IIQ: 30-90) *versus* 42 days for OB-GYN specialists (IQI: 30-60) ($p = 0.03$). In addition, female practitioners recommended avoiding anal sex for 40 days (IQI: 30-60) while male practitioners recommended 60 days (IQI: 30-67.5). The median recommended abstinence from vaginal intercourse for OB-GYN practitioners (42 days (IIQ: 30-60)) and for digestive practitioners (60 days (IQI: 30-90)) was not statistically significant nor was there a statistically significant difference between female practitioners (30 days (IQI: 22, 75-42)) and male practitioners (30 days (IQI: 30-36)).

Patients were seen in post-operative consultation after a median of 30 days in both specialties.

In addition, only 17.7% of OB-GYN specialists recommended systematic consultation with an ano-rectal specialist, while 52.9% of digestive surgeons recommended consultation with a specialist in the management of AI ($p < 0.001$).

Medium-term care

Conversely, there were statistically significant differences in medium-term treatment between the two specialties (Table 3). The majority of ano-rectal specialists treated at least five AI patients/year (36.9%) while OB-GYN specialists managed fewer than five patients/year (73.1%) ($p = 0.06$).

In addition, ano-rectal specialists informed their patients of the risks of long-term anal incontinence more often than OB-GYN specialists ($p = 0.005$). Likewise, ano-rectal specialists were more interested in the need to strain to ($p = 0.006$). The questionnaire also queried the practitioners about their recommendations for rehabilitation. This topic was not consensual and there was a statistically significant difference in recommendations between the two groups. The ano-rectal specialists recommended ano-rectal rehabilitation more often (93.5% vs. 87.8%), while they were less likely to recommend perineal muscle rehabilitation exercises (69.1% vs. 97.8%) (Table 3).

Ano-rectal specialists were more likely to recommend testing by anorectal manometry or a transanal ultrasound.

Likewise, the treatment of the various sphincter lesions diagnosed during work-up of AI diagnosed in the medium term were different for the two specialties. Thus, in the case of isolated internal sphincter lesions without symptoms, 61.4% of digestive specialists did not propose specific management, while the OB-GYN specialists proposed rehabilitation strategies (23.1%) or a consultation with an ano-rectal specialist (21.8%) ($p = 0.005$). On the other hand, when the lesion involved the external sphincter alone or in combination with internal sphincter injury, digestive specialists were more likely to recommend rehabilitation (49.1%) while OB-GYN specialists recommended either rehabilitation (26.9%), abstention from treatment (32.1%) or consultation with an ano-rectal specialist (21.8%) ($p = 0.01$).

If OASI was symptomatic, digestive specialists essentially offered rehabilitation for isolated internal sphincter injury or sphincterorrhaphy for external or combined sphincter injury while OB-GYN specialists were more likely to refer the patient to a specialist in anal incontinence ($p < 0.001$).

Delivery by cesarean section for future pregnancies in OASI patients was equally but infrequently recommended by the two specialties. However, about a quarter of practitioners consistently recommended it.

Long-term management

Finally, management of OASIs in the long term (> 12 months) was significantly different not only between the two specialties but also within the same specialty (data not shown). Almost all specialists had varying recommendations for diagnostic studies, as well as different recommendations for sphincter repair (thickness of the defect, width, angle of the defect, time from OASI).

Discussion

This survey of current practices and opinions received responses from 135 specialists (57.8% OB-GYN specialists and 42.2% digestive or ano-rectal specialists) from the members of the various learned societies contacted. The management of short-term OASI was mainly provided by OB-GYN specialists, while medium- and long-term management was mainly provided by ano-rectal specialists. There was fairly good consensus regarding short-term management. There was considerable variation in the management strategies for medium- and long-term OASI patients between the two spheres or even within the same sphere.

First, the number of responses may, at first glance, appear very small when compared to the number of members of the different learned societies. However, it is important to note that only practitioners who actually cared for patients with Grades 3 and 4 OASI were asked to complete the questionnaire. It is more likely

then that the response rate is correct but that few practitioners are "ultra-specialized" in the management of these patients who represent only 0.8% of deliveries in France [1], or 6000 cases per year.

With regard to short-term management, it is interesting to note that early management was mainly performed by OB-GYN specialists and followed the recommendations of learned societies. This is because OASI is usually diagnosed in the delivery room and it is only natural for obstetricians to deal with this sort of birth trauma. Moreover, this explains why most of the recommendations for acute management come from obstetrical and gynecological societies [5,8-10]. It is interesting, however, that ano-rectal specialists were more often involved in the acute management of Grade IV OASI. This may be due to the fact that the long-term prognosis is worse, with a reported AI rate of 30-60% between six weeks and six months after repair [11,12].

However, in our survey, there was no difference according to specialty in the rate of internal sphincter (IS) repair and only half of the practitioners performed an individual IS suture repair, even though the IS plays an essential role in passive continence and several studies suggest that it also plays a role in long-term anal incontinence [13,14]. Learned societies also recommend specific repair of the injured IS [5, 8-10]. However, it may be difficult to individualize this layer, especially in the case of an early tear, which probably explains why only half of the practitioners systematically do so. This raises questions about current practices and should possibly lead to a discussion of specialization for practitioners who perform acute perineal repair.

In the medium term, ano-rectal surgeons were more likely to inform patients of the long-term risk of anal incontinence (95%) than OB-GYN specialists (75%). This is probably explained by the fact that the management of anal incontinence in France is provided by ano-rectal specialists and that AI often does not develop until several years after childbirth, and therefore, at a distance from OB-GYN monitoring. However, in view of the estimated 40-60% risk of AI and the 14.6-30.6% risk of fecal incontinence [15] at 11.6 years after Grade III or IV OASI, it seems necessary to mention the possibility of this complication.

It is also probably for the same reasons that ano-rectal specialists requested more additional diagnostic studies than OB-GYN specialists.

The management of sphincter lesions also varied according to specialties and within specialties. This is due to the lack of consensus on early sphincter repair after OASI. Indeed, early systematic sphincter repair after OASI, even when asymptomatic, can be performed up to 21 days after childbirth, providing results similar to late repair [16,17] although results often deteriorate during follow-up [18]. In various series of sphincterorraphy performed at a distance from the acute episode, the long-term results are also mixed with approximately 50% of patients eventually becoming incontinent again [19,20]. However, it has been shown that young patients benefit the most from surgery [21], arguing for early suture repair as an essential part of incontinence management/prevention. Conversely, suturing of isolated IS injury is not recommended [22].

In addition, it was observed that ano-rectal specialists were more likely to recommend ano-rectal rehabilitation while OB-GYN specialists were more likely to recommend perineal muscle rehabilitation, even though the CNGOF recommends this only in the event of persistent post-partum urinary or anal incontinence [23]. Moreover, a randomized controlled study has shown that ano-perineal rehabilitation improves symptoms of anal incontinence [24]. Both types of rehabilitation are compatible and can be complementary. Ano-perineal rehabilitation targets defecation mechanisms, synchronization between the sphincters and abdominal muscles, as well as ano-rectal coordination (measured with an intra-anal probe). Perineal rehabilitation is essentially based on strengthening and coordination of the perineal muscles (possibly assessed with an intravaginal probe).

Regarding the advisability of cesarean section, all practitioners agree that it should be offered on a case-by-case basis. Indeed, the literature is quite supportive of a case-by-case discussion. A recent study proposed that cesarean section be performed for all parturients who had suffered Grade 4 OASI because of an increased risk of AI [25], however other authors did not find a cesarean section advantageous in this context [15,26]. Vaginal birth is reported to be

feasible for post-OASI patients without symptomatic AI or who have normal sphincters on ultrasound examination, but a caesarean section should be offered for all others [27]. Furthermore, recurrent birth trauma with OASI appears to be associated with an increased long-term risk of AI [28].

Conclusion

The acute management of OASI differs little between specialties, but published recommendations are not fully followed. On the other hand, the management of OASI in the medium-term varies considerably due to a lack of consensus on which specialty should manage these patients and the lack of available recommendations. For patients presenting with post-OASI incontinence in the long term, care is generally provided by ano-rectal specialists but there is no consensus on the specific details of management. Building a consensus among the practitioners who provide such management, especially in the medium- and long-term, could help improve long-term continence outcomes. An inter-specialty discussion is therefore necessary.

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Tables:

Table 1: Characteristics of responders

Table 2: Short-term management of OASI according to specialty (digestive or ano-rectal surgeons and obstetrical/gynecological surgeons)

Table 3: Mid-term management of OASI by either digestive/ano-rectal surgeons or obstetrical/gynecological surgeons

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Annex 1

Questionnaire on management of Grade III-IV Obstetrical Anal Sphincter Injury (OASI)

	Number, (%)
Sex	
<i>Male</i>	64 (47.4%)
<i>Female</i>	71 (52.6%)
Age	
<i>20-35 yrs</i>	25 (18.5%)
<i>35-45 yrs</i>	50 (37%)
<i>45-50 yrs</i>	12 (8.9%)
<i>50-60yrs</i>	29 (21.5%)
<i>> 60 yrs</i>	19 (14.1%)
Specialty	
<i>Proctologist</i>	18 (13.3%)
<i>Gastro-enterologist</i>	2 (1.5%)
<i>General surgeon</i>	17 (12.6%)
<i>Colo-rectal surgeon</i>	20 (14.8%)
Total of digestive specialists	57 (42.2%)
<i>Gynecologic surgeon</i>	4 (3%)
<i>Obstetrician-gynecologist</i>	55 (40.7%)
<i>Midwife</i>	19 (14.1%)
Total of obstetrical/gynecological specialties	78 (57.8%)
Specialist in anal incontinence	
<i>Yes</i>	43 (33.1%)
<i>No</i>	87 (66.9%)
Work setting	
<i>Public hospital</i>	79 (58.5%)
<i>Private practice</i>	37 (27.4%)
<i>Mixed activity</i>	18 (13.3%)
Region of France	
<i>Center</i>	7 (5.2%)
<i>East</i>	20 (14.8%)
<i>North</i>	10 (7.4%)
<i>Northeast</i>	1 (0.7%)
<i>West</i>	42 (31.1%)
<i>Paris</i>	31 (23%)
<i>South</i>	17 (12.6%)
<i>Southeast</i>	1 (0.7%)
<i>Southwest</i>	1 (0.7%)
<i>Unknown</i>	5 (3.7%)

Table 1: Characteristics of responding practitioners

	Gynecologic sphere (n=78)	Digestive sphere (n=57)	p
Do you provide acute management of Grade III-IV OASI (within 24 hrs of injury)?			<0.001
	<i>never</i>	13 (16.7%)	29 (50.9%)
	<i>occasionally (<5/ yr)</i>	38 (48.7%)	25 (43.9%)
	<i>often (5-20/yr)</i>	0	2 (3.5%)
	<i>very often (>20/yr)</i>	27 (34.6%)	1 (1.8%)
Do you perform layer-by-layer repair of OASI? yes (%)	61 (98.4%)	26 (89.7%)	0.09
Do you use absorbable suture?			<0.001
	<i>In the deep layers (%)</i>	4 (6.5%)	8 (29.6%)
	<i>In the superficial layers (%)</i>	2 (3.2%)	5 (18.5%)
	<i>In both (%)</i>	56 (90.3%)	14 (51.9%)
Sphincter repair technique?			0.21
	<i>End-to-end (%)</i>	21 (36.8%)	14 (46.7%)
	<i>Overlapping(%)</i>	27 (47.4%)	15 (50%)
	<i>It depends (%)</i>	9 (15.8%)	1 (3.3%)
Do you try to repair the internal sphincter? yes (%)	31 (47%)	21 (53.8%)	0.49
Do you recommend perineal massage? yes (%)	12 (19.4%)	3 (9.7%)	0.23
Do you recommend local wound care?			0.18
	<i>Yes, by a nurse (%)</i>	7 (10.8%)	6 (18.8%)
	<i>Yes, by the patient (%)</i>	43 (66.2%)	15 (46.9%)
	<i>No, only local hygiene (%)</i>	15 (23.1%)	11 (34.4%)
Do you recommend antibiotic therapy? Yes (%)	30 (46.9%)	21 (61.6%)	0.08
Do you recommend the use of post-operative laxatives? Yes (%)	52 (80%)	31 (93.9%)	0.07
Do you recommend consultation with an ano-rectal specialist? Yes (%)	11 (17.7%)	18 (52.9%)	<0.001

Table 2: Management of obstetrical anal sphincter injuries (OASI) according to the practitioner's specialty.

	Gynecology sphere (n=78)	Digestive sphere (n=57)	p
Do you manage grade III-IV OASI in the medium-term (< 6 months post-injury)?			0.06
<i>never</i>	12 (15.6%)	13 (24.1%)	
<i>occasionally (<5/ yr)</i>	45 (58.4%)	20 (37%)	
<i>often (5-20/yr)</i>	18 (23.4%)	16 (29.6%)	
<i>very often (>20/yr)</i>	2 (2.6%)	5 (9.3%)	
Do you ask whether the patient has anal incontinence? Yes (%)	69 (92%)	42 (95.5%)	0.71
Do you inform the patient of the risks of long-term incontinence? Yes (%)	54 (75%)	41 (95.3%)	0.005
Do you ask whether the patient needs to strain to empty their bowels? Yes (%)	23 (39%)	30 (68.2%)	0.003
Do you recommend ano-rectal rehabilitation?			0.006
<i>no (%)</i>	21 (30.9%)	3 (6.5%)	
<i>occasionally (%)</i>	31 (45.6%)	25 (54.3%)	
<i>always (%)</i>	16 (23.5%)	18 (39.1%)	
Do you recommend perineal muscle rehabilitation?			0.01
<i>no (%)</i>	2 (2.7%)	5 (12.2%)	
<i>occasionally (%)</i>	14 (18.9%)	14 (34.1%)	
<i>always (%)</i>	58 (74.4%)	22 (53.7%)	
Do you recommend performance of anal manometry?			<0.001
<i>no (%)</i>	31 (44.9%)	6 (13.3%)	
<i>occasionally (%)</i>	34 (49.3%)	28 (62.2%)	
<i>always (%)</i>	4 (5.8%)	11 (24.4%)	
Do you recommend performance of endo-anal ultrasound?			0.004
<i>no (%)</i>	23 (33.8%)	4 (8.9%)	
<i>occasionally (%)</i>	34 (50%)	26 (57.8%)	
<i>always (%)</i>	11 (16.2%)	15 (33.3%)	
Do you recommend caesarean delivery for future pregnancies?			0.66
<i>never (%)</i>	0	1 (1.8%)	
<i>case-by-case (%)</i>	47 (60.3%)	33 (57.9%)	
<i>always (%)</i>	18 (23.1%)	12 (21.1%)	
<i>no response (%)</i>	13 (16.7%)	11 (19.3%)	
If there is asymptomatic injury of the internal sphincter, do you propose?			0.002
<i>nothing</i>	28 (42.4%)	35 (71.4%)	

<i>rehabilitation</i>	18 (27.3%)	13 (26.5%)	
<i>consultation with an ano-rectal specialist</i>	17 (25.8%)	1 (2%)	
<i>consultation with a gynecologist</i>	2 (3%)	0	
<i>suture repair</i>	1 (1.5%)	0	
<i>follow-up exam at one year</i>	0	0	
For a combined injury of the internal and external sphincters, do you propose?			0.007
<i>nothing</i>	25 (37.9%)	28 (56%)	
<i>rehabilitation</i>	21 (31.8%)	16 (32%)	
<i>consultation with an ano-rectal specialist</i>	17 (25.8%)	1 (2%)	
<i>consultation with a gynecologist</i>	1 (1.5%)	0	
<i>suture repair</i>	2 (3%)	4 (8%)	
<i>follow-up exam at one year</i>	0	1 (2%)	
For a symptomatic injury of the internal sphincter, do you propose?			<0.001
<i>nothing</i>	2 (3,1%)	5 (10%)	
<i>rehabilitation</i>	26 (40%)	38 (76%)	
<i>consultation with an ano-rectal specialist</i>	33 (50.8%)	4 (8%)	
<i>consultation with a gynecologist</i>	1 (1.3%)	0	
<i>suture repair</i>	4 (4.6%)	3 (6%)	
<i>follow-up exam at one year</i>	0	0	
For an external or combined internal/external sphincter injury, do you propose?			<0.001
<i>nothing</i>	2 (3.1%)	0	
<i>rehabilitation</i>	19 (29.2%)	19 (38%)	
<i>consultation with an ano-rectal specialist</i>	0	0	
<i>consultation with a gynecologist</i>	28 (43.1%)	2 (4%)	
<i>suture repair</i>	16 (24.6%)	29 (58%)	
<i>follow-up exam at one year</i>	0	0	

Table 3: Medium-term management of obstetrical anal sphincter injuries (OASI), according to specialty of the practitioner. Statistically significant results are in **bold face**.