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# PATTERN OF PRESENTATION AND OUTCOME OF OBSTETRIC ANAL SPHINCTER INJURY (OASIS) REPAIR IN A NATIONAL FISTULA CENTRE, KATSINA

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## ABSTRACT

**Background:** Obstetric anal sphincter injury is a cause of apparent morbidity in obstetric practice in Nigeria. This poses physical, social, mental and psychological challenge to the patients thereby jeopardising their quality of life. **Objectives:** The objectives of this study were to determine the pattern of presentation, prevalence and outcome after repair of obstetric anal sphincter injury at the National Obstetric Fistula Centre, Babbar–Ruga, Katsina (NOFICK). **Materials and methods:** This was a two-year retrospective review of all cases that underwent repair for obstetric anal sphincter injury at the National Obstetric Fistula Centre, Babbar Ruga, Katsina, Katsina State, North Western Nigeria from 1 Jan 2015 to 31 December 2016. NOFIC is the second national fistula centre in Nigeria. The tertiary health centre provides services to the obstetric fistula population in North West Nigeria and neighbouring countries such as the Niger Republic. SPSS 22 was used for data entry and analysis. **Results:** During the study period a total of 728 procedures were performed in the centre, out of which 61 (8.3%) were surgical repair for obstetric anal sphincter injury. Only 54 patients' case notes were available for analysis giving a retrieval rate of 88.5%, and further analysis was limited to these cases. The mean age of the women was 24.22±7.0 with minimum age of 16 years and maximum age of 48 years. The mean parity of the women was 2.28±1.5. Majority (57.4%) of the women had quranic education with only 11.1% having tertiary level of education. The prevalence of obstetric anal sphincter injury was found to be 8.3%. Thirteen percent of the women presented with history of flatus incontinence while the remaining presented with the history of both flatus and faecal incontinence. A diagnosis of 3$^{rd}$ and 4$^{th}$ degree perineal tear was made in 24.1% and 75.9% of the women respectively. Seventy point four percent (38) of the women were delivered at home. Ten (62.5%) of the 16 patients that delivered in the hospital had instrumental vaginal delivery while the remaining had spontaneous vaginal delivery. History of episiotomy was obtained in 13 (24.1%) of the women that were delivered in the hospital. 79.2% of the babies delivered were male while 20.8 were delivered as females. Majority (83%) of the babies were delivered alive. History of delivery of a macrosomic (fetal weight of ≥4kg) baby was obtained in only 8 of the patients, 5 claimed that the fetal weight was <4kg and 41 could not remember/do not know the fetal weight at delivery. Previous history of perineal laceration was obtained in 79.6% of them. At discharge 87% were found to have healed successfully. **Conclusion:** The prevalence of 8.3% was high. Majority of the patients were young and having their first delivery. The contributing factors identified were younger age, primiparity, home delivery, use of episiotomy and instrumental vaginal delivery.

**KEYWORDS:** Obstetric anal sphincter, Perineal tear, Flatus incontinence, Stool incontinence.

## INTRODUCTION

Perinaeal injury can occur either with spontaneous vaginal delivery or secondarily as a complication of manipulative or operative obstetric procedures. Severe perineal injury can involve damage to the anal sphincters and anal mucosa. Traditionally, the severity of perineal tears was limited to 4 grades: grade 1 (superficial vaginal and /or perineal skin), grade 2 (vaginal muscles), grade 3 (in or through external anal sphincter muscle), and grade 4 (external and internal anal sphincters and anorectal lumen).[1] As there was a lack of consistency in the classification of a partial anal sphincter, with up to 33% of consultant obstetricians classifying a complete or partial tear of the EAS as a second degree tear,[2] Sultan[3] devised a more specific classification, later adopted by the WHO[4] and the International Consultation on Incontinence.[5] In this classification, grade 3 is further refined as involving the anal sphincter complex and is divided into 3a, 3b, 3c. The type of third degree tear seems to have an impact on symptoms, with OASIS grade 3a and 3b having a better prognosis than 3c. In fact, those with a 3c OASIS had symptoms similar in severity to those with a fourth degree laceration.[6] Obstetric anal sphincter injuries include third and fourth degree perineal lacerations.

**Table 1: Classification of perineal trauma.**[3,4]

| Type of tear | Definition |
|---|---|
| First – degree | Injury to perineal skin |
| Second – degree | Injury to the perineum involving the perineal muscles, but not involving the anal sphincter |
| Third – degree | Injury to the perineum involving the anal sphincter complex |
| (3A) | <50% of the EAS thickness torn |
| (3B) | >50% of the EAS torn |
| (3C) | Both the EAS and the IAS torn |
| Fourth – degree | Injury to the perineum involving the anal sphincter complex and the anal epithelium |

OASIS is often misdiagnosed at the time of delivery by obstetrical care providers as a result of this careful examination of the perineum, including a rectal examination for those with a tear that is more than superficial in depth, should be performed in all women prior to suturing. A clinical diagnosis of obstetric anal sphincter injury occurs in about 3% of women after first delivery, and 0.8% of women who have previously had at least one baby.[7] Results from a systematic review indicate that the incidence may be as high as 11%.[8] Studies looking at the incidence of OASIS based on the WHO's international classification of diseases.[9] reported an incidence of 4.0 – 6.6% of all vaginal birth,[10,11,12] with higher rates in assisted deliveries (6%) than in spontaneous vaginal deliveries (5.7%).[13] In Nigeria the incidence of anal sphincter injury has been reported to be 1.4%.[14] The incidence of perineal trauma varies markedly between studies with higher incidence in hospital based study settings compared with community based study settings.[15]

Factors that have been shown to be associated with perineal tears involving the anal sphincter are instrumental delivery,[16,17,18] with forceps associated with a higher risk than ventouse,[16,19,20] longer duration of second stage of labour,[18,20,21] nulliparity,[19,20,21] large for gestational age or birthweight[18,19,21,22] and occipitoposterior (OP) position.[20] Episiotomy as a risk or protective factor for OASIS is controversial with some studies reporting a reduced risk with a mediolateral episiotomy,[16] and others are either inconclusive,[23] or reporting increased risk.[22] However, randomized controlled trials (RCTs) have failed to demonstrate a significant reduction in OASIS in women who received an episiotomy compared with women who did not.[24] Women with previous history of anal sphincter injury have seven to ten fold risk of having recurrent obstetric anal sphincter injury than women without a history of previous sphincter trauma.[25]

OASIS can have a significant impact on women by impairing their quality of life in both the short and long term. Some of the immediate complications of OASIS are perineal pain with associated oedema, bleeding, urinary retention, and defecation problems. Additional complications include abscess formation, wound breakdown, and rectovaginal fistula. In the long term, injury to the anal sphincter is assumed to be the most important risk factor for female anal incontinence,[26] Anal incontinence incorporates a range of symptoms including flatus incontinence, passive soiling, or incontinence of liquid or solid stool.[27] Any of these symptoms can potentially be a hygienic, social and psychological problem for women. Many do not seek medical attention because of embarrassment and the taboo nature of the problem. Some feel that the symptoms are a normal result of vaginal delivery.[26]

The aim of this study was to determine the pattern of presentation, prevalence and outcome of obstetric anal sphincter injury repair at the National Obstetric Fistula Centre, Katsina.

## METHODOLOGY

This was a two-year retrospective review of all cases that underwent repair for obstetric anal sphincter injury at the National Obstetric Fistula Centre Babbar Ruga, Katsina from 1st Jan, 2015 to 31st Dec, 2016. Data was obtained from the patient admission form that is filled for all patients on admission, intra-operatively, post operatively and at discharge. Only 3rd and 4th degree perineal lacerations were included in the study as they affect the sphincter function and based on the definition of obstetric anal sphincter injury. The patient's history, surgeon's keen eye inspection, digital rectal examination and examination under anaesthesia before surgery were the primary tools used for diagnosis. All the case notes of the patients that had repair during the stated period were retrieved, data was entered and analysed using SPSS version 22 for frequencies and means.

## RESULTS

During the study period a total of 728 procedures were performed in the centre, out of which 61 (8.3%) were surgical repair for obstetric anal sphincter injury. Only 54 patients' case notes were eligible and available for analysis giving a retrieval rate of 88.5%, and further analysis was limited to this cases. The mean age of the women was 24.22±7.0 with minimum age of 16 years and maximum age of 48 years. The mean parity of the women was 2.28±1.5. Majority (57.4%) of the women had Quranic education, with only 11.1% having tertiary level of education.

**Table 2: Sociodemographic characteristics.**

| Age | Frequency | Percentage |
|---|---|---|
| 15-24 | 30 | 55.6 |
| 25-34 | 19 | 35.2 |
| 35-44 | 4 | 7.4 |
| 45-54 | 1 | 1.9 |
| **Parity** | | |
| 0 | 1 | 1.9 |
| 1 | 21 | 38.9 |
| 2 | 13 | 24.1 |
| 3 | 8 | 14.8 |
| 4 | 6 | 11.1 |
| ≥5 | 5 | 9.6 |
| **Educational status** | | |
| Quranic | 31 | 57.4 |
| Primary | 9 | 16.7 |
| Secondary | 8 | 14.8 |
| Tertiary | 6 | 11.1 |
| **Occupation** | | |
| Employed | 5 | 9.3 |
| Unemployed | 49 | 90.7 |
| **Ethnicity** | | |
| Hausa/Fulani | 53 | 98.1 |
| Yoruba | 1 | 1.9 |

The prevalence of obstetric anal sphincter injury was found to be 8.3%. Thirteen percent of the patients presented with history of flatus incontinence while the remaining presented with the history of both flatus and faecal incontinence. A diagnosis of 3rd and 4th degree perineal tear was made in 24.1% and 75.9% of the women respectively.

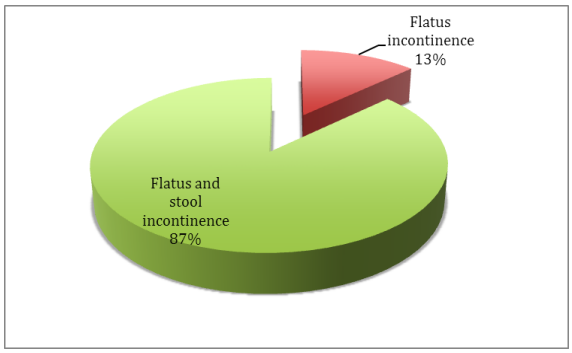


**Fig 1: Mode of presentation.**

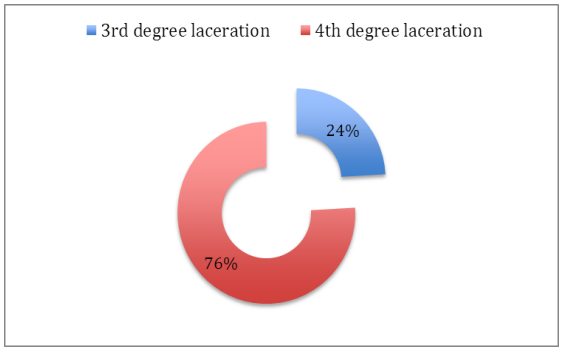


**Fig 2: Diagnosis.**

Seventy point four percent (38) of the patients were delivered at home, while 29.6%(16) were delivered in the hospital. One of the patients that were delivered at home developed a fourth degree laceration as a result of gishiri cut for the relief of prolonged labour by a traditional birth attendant. History of instrumental vaginal delivery was obtained in ten (18.5%) of the patients, this constituted 62.5% of the 16 women that were delivered in the hospital. History of episiotomy was also obtained in 13 (24.1%) of the patients, constituting 81.3% of those that were delivered in the hospital. Majority (83%) of the babies were delivered alive. History of delivery of a macrosomic (fetal weight of ≥4kg) baby was obtained in only 8 of the patients, 5 claimed that the fetal weight was <4kg and 41 could not remember/do not know the fetal weight at delivery. Previous history of perineal laceration was obtained in 79.6% of them. At discharge 87% were found to have healed successfully, 5.6% healed with residual flatus incontinence while 7.4% had broken down repair.

**Table 3: Contributory factors.**

| Place of delivery | Frequency | Percentage |
|---|---|---|
| Home | 38 | 70.4 |
| Hospital | 16 | 29.6 |
| **Mode of delivery** | | |
| Spontaneous vaginal delivery | 44 | 81.5 |
| Instrumental vaginal delivery (forceps) | 10 | 18.5 |
| **Episiotomy** | | |
| No | 41 | 75.9 |
| Yes | 13 | 24.1 |
| **Fetal macrosomia** | | |
| Yes | 8 | 14.8 |
| No | 5 | 9.3 |
| Could not remember/does not know fetal weight at delivery | 41 | 75.9 |
| **Previous perineal laceration** | | |
| Yes | 15 | 27.8 |
| No | 39 | 72.2 |

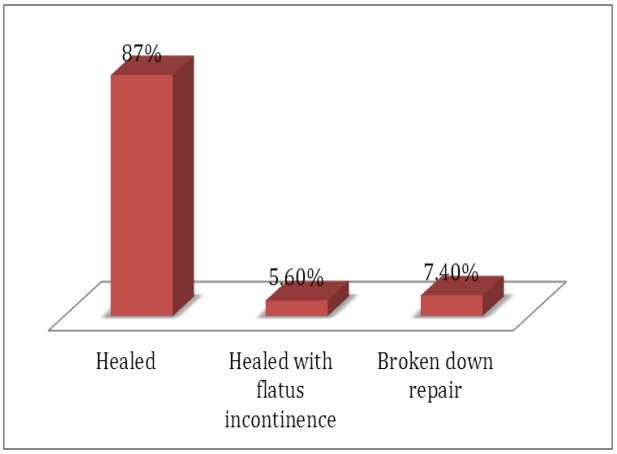


**Fig 3: Repair outcome.**

## DISCUSSION

Repair for obstetric anal sphincter injury constituted 8.3% of all the surgeries in the centre during the study period. The prevalence of 8.3% obtained is higher than 6% reported in Sweden,[28] 0.9% in Calabar,[29] and 1.4% reported for Nigeria by Hirayana et al.[14] The high prevalence obtained could possibly be, because the study is a hospital based study and the also the centre being a referral centre for other fistula repair centres. Obstetric anal sphincter injury was found to be related to age and parity as it was seen in the study that majority of the patient were within the age group of 15-24 years and least among those that are 35 years and above. The high rate in this age group could be because they are at the peak of their reproductive life. Similarly, highest rate was seen in those having their first delivery. This may be as a result of un- supervised home delivery, rigid perineum that has not been tested, and restrictive use of episiotomy. Some of the clinical symptoms and signs of obstetric anal sphincter injury include stool and or flatus incontinence, absence of cutaneous anal reflex, and patulous anus. Majority of the patients presented with the complaint of both flatus and stool incontinence at the time of presentation and absence of cutaneous anal reflex. Instrumental vaginal delivery[13,14,15] and use of episiotomy[20] were some of the factors associated with the risk of anal sphincter injury, in this study 81.3% and 62.5% of those that were delivered in the hospital gave history of an episiotomy at the time of delivery and instrumental vaginal delivery respectively. The repair of anal sphincter injury requires the theoretical and practical knowledge of stool and flatus continence and the support mechanism in the female, coupled with the knowledge of the mechanism (cut-through trauma) of injury in obstetric anal sphincter injury.[30] The repair should be done by a doctor who is trained or done under supervision of a trained surgeon in the operating theatre with good lighting, appropriate instruments, under aseptic condition. General or regional anaesthesia is important for good muscle relaxation. Depending upon the experience of the surgeon overlap or end-to-end repair technique can be used for the repair. All the patients were operated in the theatre, using spinal anaesthesia and the end-to-end technique was used for the repair.

## CONCLUSION

The prevalence of 8.3% was high. Majority of the patients were young and having their first delivery. The contributing factors identified were younger age, primiparity, home delivery, use of episiotomy and instrumental vaginal delivery.

**Conflict of interest declaration**: There are no conflicts of interest.

## REFERENCE

1. Cunningham F, Leveno KJ, Bloor S, Hauth J, Rouse DJ, Spong C. Normal labor and delivery. In: Cunningham F, Leveno KJ, Bloor S, Hauth J, Rouse DJ, Spong C, eds. William's Obstetrics, 23rd ed. New York (NY): McGraw-Hill, 2011.
2. 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. Sultan AH. Obstetrical perineal injury and anal incontinence. Clin Risk, 1999; 5: 193-196.
4. Thach T. methods of repair for obstetric anal sphincter injury: RHL commentary. Genevs(CH). World Health Organization, The WHO Reproductive Health Library, 2006
5. Koelbl H, Nitti V, Baessler K, Salvatore S, Sultan A, Yamaguchi O. Pathophysiology of urinary incontinence, faecal incontinence and pelvic organ prolapse. In: Abrams P, Cardozo L, Khoury S, Wein A, eds.Incontinence, 4th ed. St Hillier, (GB): Health Publication, 2009; P: 255–330.
6. Roos AM, Thakar R, Sultan AH. Outcome of primary repair of obstetric anal sphincter injuries (OASIS): does the grade of tear matter? Ultrasound Obstet Gynecol, 2010; 36: 368–74.
7. Harkin R, Fitzpatrick M, O'Connell PR, O'Herlihy C: Anal sphincter disruptionat vaginal delivery: is recurrence predictable? Eur J Obstet Gynecol Reprod Biol 2003; 109:149–152.
8. Dudding TC, Vaizey CJ, Kamm MA: Obstetric anal sphincter injury: incidence, risk factors, and management. Ann Surg, 2008; 247: 224–237.
9. World Health Organization. International Classification of Diseases ICD). Geneva (CG): WHO; 2015. Available at: http://www.who.int/classifications/icd/en. Accessed on September, 15, 2015.
10. Baghestan E, Bordahl PE, Rasmussen SA, Sande AK, Lyslo I, Solvang I. A validation of the diagnosis of obstetric sphincter tears in two Norwegian databases, the Medical Birth Registry and the Patient Administration System. Acta Obstet Gynecol Scand, 2007; 86: 205–9.
11. Laine K, Gissler M, Pirhonen J. Changing incidence of anal sphincter tears in four Nordic countries through the last decades. Eur J Obstet Gynecol Reprod Biol, 2009; 146: 71–5.
12. Sultan AH, Kamm MA, Hudson CN, Thomas JM, Bartram CI. Anal-sphincter disruption during vaginal delivery. N Engl J Med, 1993; 329: 1905–11.
13. Ekeus C, Nilsson E, Gottvall K. Increasing incidence of anal sphincter tears among primiparas in Sweden: a population-based register study. Acta Obstet Gynecol Scand, 2008; 87: 564–73.
14. F Hirayama, A Koyanagi, R Mori, aJ Zhang, JP Souza, AM Gu¨lmezoglu. Prevalence and risk factors for third- and fourth-degree perineal lacerations during vaginaldelivery: a multi-country study. BJOG, 2012; 119: 340–347.
15. Lindgren HE, Radestad IJ, Christensson K, Hildingsson IM: Outcome of planned home births compared to hospital births in Sweden between 1992

and 2004. A population-based register study. Acta Obstet Gynecol Scand, 2008; 87: 751–759.
16. Revicky V, Nirmal D, Mukhopadhyay S, Morris EP, Nieto JJ: Could a mediolateral episiotomy prevent obstetric anal sphincter injury? Eur J Obstet Gynecol Reprod Biol, 2010; 150: 142–146.
17. Baghestan E, Irgens LM, Bordahl PE, Rasmussen S. Trends in risk factors for obstetric anal sphincter injuries in Norway. Obstet Gynecol, 2010; 116: 25–34.
18. Lesley A Smith1, Natalia Price, Vanessa Simonite and Ethel E Burns. Incidence of and risk factors for perineal trauma: a prospective observational study. BMC Pregnancy and Childbirth, 2013; 13: 59.
19. Groutz A, Hasson J, Wengier A, Gold R, Skornick-Rapaport A, Lessing JB, Gordon D: Third- and fourth-degree perineal tears: prevalence and risk factors in the third millennium. Am J Obstet Gynecol, 2010; 204(347): 341–344.
20. Rognant S, Benoist G, Creveuil C, Dreyfus M: Obstetrical situations with a high risk of anal sphincter laceration in vacuum-assisted deliveries. Acta Obstet Gynecol Scand, 2012; 91: 862–868.
21. Landy HJ, Laughon SK, Bailit JL, Kominiarek MA, Gonzalez-Quintero VH, Ramirez M, Haberman S, Hibbard J, Wilkins I, Branch DW, et al: Characteristics associated with severe perineal and cervical lacerations during vaginal delivery. Obstet Gynecol, 2011; 117: 627–635.
22. Andrews V, Sultan AH, Thakar R, Jones PW: Risk factors for obstetric anal sphincter injury: a prospective study. Birth, 2006; 33: 117–122.
23. Gottvall K, Allebeck P, Ekeus C: Risk factors for anal sphincter tears: the importance of maternal position at birth. BJOG, 2007; 114: 1266–1272.
24. Carroli G, Belizan J: Episiotomy for vaginal birth. Cochrane Database Syst Rev 2012, Issue 1 Art No: CD000081. doi:101002/14651858CD000081pub2 (accessed 21st August 2017).
25. Baghestan E, Irgens LM, Bordahl PE, Rasmussen S. Risk of recurrence and subsequet delivery after obstetric anal sphincter injuries BJOG, 2012; 119(1): 62-9.
26. Marie-Andree Harvey, Marianne Pierce, Halifax NS et al. Obstetrical Anal Sphincter Injuries (OASIS): Prevention, Recognition, and Repair. J Obstet Gynaecol Can, 2015; 37(12): 1131-1148.
27. Haylen BT, de Ridder D, Freeman RM, Swift SE, Berghmans B, Lee J, et al. An International Urogynecological Association(IUGA/International Continence Society (ICS) joint report on the terminology for female pelvic floor dysfunction. Neurourol Urodyn, 2010; 29: 4-20.
28. Zetterström J1, López A, Anzén B, Norman M, Holmström B, Mellgren A. Anal sphincter tears at vaginal delivery: risk factors and clinical outcome of primary repair. Obstet Gynecol, 1999 Jul; 94(1): 21-8.
29. Charles N, Cajethan E, Christopher I, Felix N. The pattern and maternal outcome of lower genital tract injuries among women with vaginal deliveries in Calabar, A Niger Delta state of Nigeria. International journal of women's health and reproduction sciences, 2015; 3(4): 190-195.
30. Kees Waaldijk. Sphincter ani rupture. Obstetric trauma surgery art and science, 2015; 9.