Research Article

Incidence and Evaluation of Pelvic Floor Complaints in Post-Reconstruction Obstetric Anal Sphincter Injuries (OASIs) Patients at Hasan Sadikin Hospital Bandung

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Abstract

Objective: Obstetric Anal Sphincter Injuries (OASIs) are complications of vaginal delivery that can disrupt a woman's quality of life. No previous study has described pelvic floor complaints in OASIs patients after reconstruction in West Java. This study describes the incidence of OASIs, patient characteristics, and post-reconstruction pelvic floor complaints.

Methods: A cross-sectional, descriptive-analytic study using patient registry and the Pelvic Floor Distress Inventory-20 (PFDI-20) questionnaire questionnaire, comprising the Pelvic Organ Prolapse Distress Inventory 6 (POPDI-6), Colorectal-Anal Distress Inventory 8 (CRADI-8), and Urinary Distress Inventory 6 (UDI-6). Data were analyzed using SPSS version 30.

Results: The incidence of OASIs at Hasan Sadikin Hospital Bandung was 2.16% (95% CI 1.66–2.77) in 2021–2024. Of 61 patients interviewed, 23 (37.7%) had post-reconstruction pelvic floor complaints. Primiparas (p=0.306) had fewer complaints, although not significantly, while merchants had the highest proportion of complaints (occupation, p=0.015. Previous delivery setting was not significantly associated with complaints (p=0.738) Higher infant birth weight (p=0.004) and overweight/obese BMI (p<0.001) were associated with a higher risk of complaints.

Conclusion: The incidence of pelvic floor complaints after OASIs reconstruction in West Java remains high. Patient characteristics play an important role in this outcome.

Keywords: Fecal incontinence; incidence; OASIs; total perineal rupture

Insidensi dan Evaluasi Keluhan Dasar Panggul pada Pasien *Obstetric Anal Sphincter Injuries* (OASIs) Pascarekonstruksi di RSUP Dr. Hasan Sadikin Bandung

Abstrak

Tujuan: *Obstetric Anal Sphincter Injuries* (OASIs) merupakan komplikasi persalinan pervaginam yang dapat mengganggu kualitas hidup perempuan. Belum ada penelitian sebelumnya yang menggambarkan keluhan dasar panggul pada pasien OASIs pascarekonstruksi di Jawa Barat. Penelitian ini menggambarkan insidensi OASIs, karakteristik pasien, dan keluhan dasar panggul pascarekonstruksi.

Metode: Penelitian deskriptif-analitik potong lintang menggunakan registri pasien dan kuesioner *Pelvic Floor Inventory-20* (PFDI-20), yang terdiri atas *Pelvic Organ Prolapse Distress Inventory 6* (POPDI-6), *Colorectal-Anal Distress Inventory 8* (CRADI-8), dan *Urinary Distress Inventory 6* (UDI-6). Data dianalisis menggunakan SPSS versi 30.

Hasil: Insidensi OASIs di RSUP Dr. Hasan Sadikin Bandung sebesar 2,16% (IK95% 1,66–2,77) pada 2021–2024. Dari 61 pasien yang diwawancarai, 23 (37,7%) mengalami keluhan dasar panggul pascarekonstruksi. Primipara (p=0,306) memiliki keluhan lebih sedikit, tetapi tidak bermakna, sedangkanpedagang memiliki proporsi keluhan tertinggi (pekerjaan, p=0,015). Tempat bersalin sebelumnya tidak berhubungan bermakna dengan keluhan (p=0,738). Berat lahir bayi yang lebih tinggi (p=0,004) serta IMT berat badan lebih/obesitas (p<0,001) berhubungan dengan risiko keluhan yang lebih tinggi

Kesimpulan: Insidensi keluhan dasar panggul setelah rekonstruksi OASIs di Jawa Barat masih tinggi. Karakteristik pasien berperan penting terhadap luaran ini.

Kata kunci: Inkontinensia alvi; insidensi; OASIs; ruptur perineum total

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Introduction

Obstetric anal sphincter injuries (OASIs) are severe outcomes of vaginal births. Third- and fourth-degree injuries to the perineum that affect the internal and external anal sphincters, as well as the anal epithelium to varied degrees, are included in OASIs.[1] The reported incidence of OASIs varies from 0.5% to 17%; however, due to variations in reporting and classification, it cannot be accurately determined.[2] There are several factors that contribute to the development of OASIs, such as primiparity, birth weight, use of delivery aids (vacuum and forceps), prolonged second stage of labour, episiotomy, etc.[3]

OASIs are a major risk factor in the development of anal incontinence in women and can also cause perineal pain, dyspareunia, and faecal urgency. Significant long-term suffering, possible stigmatization, and possible effects on a woman's quality of life could result from these conditions.[1,4] In this regard, timely recognition and intervention are crucial to prevent long-term complications.

Primary OASIs repair comes with a risk of failure, and abnormalities may be identified in the external anal sphincter (EAS) and/or internal anal sphincter (IAS).[3] Pelvic floor complaints may also occur after reconstruction in OASIs patients, based on the facts above. To our knowledge, there is no previous study describing pelvic floor complaints in OASIs patients after reconstruction in West Java. This study describes the incidence of OASIs, characteristics of OASIs patients, and incidence of pelvic floor complaints in OASIs patients after reconstruction in West Java.

Methods

This was a cross-sectional, descriptive-analytic study using patient registry data conducted at Hasan Sadikin Hospital from 2021 to 2024. Primary data were collected through a screening process based on inclusion and exclusion criteria. Subjects included in this study were 1) primiparous patients diagnosed with OASIs with a history of single pregnancy, cephalic presentation, and 2) primiparous patients diagnosed with OASIs with a history of single pregnancy and a history of spontaneous and operative vaginal delivery. Subjects with 1) a history of pelvic trauma, stroke, diabetes mellitus, chronic diarrhoea or constipation, and 2) a history of birth weight <500 grams, a history of giving birth at <24 weeks of gestation, a history of caesarean section, or incomplete delivery method data were excluded from this study. This study was approved by the Health Research Ethics Committee (Komite Etik Penelitian Kesehatan/KEPK) with approval number 000.9.2/196/KEPK/VI/2025, dated 04 June 2025. As this study used secondary data obtained retrospectively from the patient registry, individual informed consent was not obtained; the requirement for informed consent was waived by the Health Research Ethics Committee, and patient data confidentiality was maintained throughout the study.

In this study,the authors used a minimum sample size of 38 participants based on calculations using the minimum sample size formula for correlation studies, with reference to studies conducted by Ignell et al.[5] Patient registry data from Hasan Sadikin Hospital were used to examine several baseline characteristics, such as patient age, occupation, parity history, previous delivery setting, vaginal delivery with or without assistive devices, episiotomy, induction/augmentation, Body Mass Index (BMI), and infant birth weight.

Pelvic floor complaints were assessed using the Pelvic Floor Distress Inventory-20 (PFDI-20), a tool for assessing the impact of pelvic floor dysfunction symptoms. Three

subscales constitute the PFDI: the Urinary Distress Inventory (UDI-6), the Colorectal-Anal Distress Inventory (CRADI-8), and the Pelvic Organ Prolapse Distress Inventory (POPDI-6). Response options range from 0 (not present) to 4 (quite a bit). To determine the overall score for each subscale (range 0 to 100), the average score of all questions is computed (between 0 and 4) and multiplied by 25. The three subscales are added together to determine the final score, which ranges from 0 to 300. Higher scores correspond to more symptoms of pelvic floor dysfunction.[6]

Statistical calculations were performed analytically using Statistical Package for the Social Sciences (SPSS) Software, version 30. Bivariate analysis was performed using the t-test for normally distributed data and the Mann-Whitney test for data that were not normally distributed, to compare two groups. The Chi-square test was used for categorical variables, including those with more than two categories. The significance of the test results was determined based on the p value <0.05.

Results

In this study, data were collected from all patients who suffered obstetric anal sphincter tears (third- and fourth-degree perineal tears) who underwent vaginal delivery between 2021 and 2024. At Hasan Sadikin Hospital in Bandung, there were 15 cases (1.4% of total vaginal deliveries) of OASIs in 2021, 8 (0.8%) cases in 2022, 17 (3.2%) cases in 2023, and 21 (6.2%) cases in 2024. Cumulatively, the incidence rate of OASIs in patients who underwent vaginal delivery at Hasan Sadikin Hospital from 2021–2024 was 2.16%.

Of the 61 patients interviewed, 23 patients (37.7%) reported post-reconstruction pelvic floor complaints. Patients complaining of pelvic floor problems had an average age of 30.04 years and an average infant birth weight of 3360.87 grams. Based on the analysis, it was found that parity (p=0.306), vacuum/forceps assistance (p=0.356), episiotomy (p=0.768), and induction/ augmentation (p=1.00) were not significantly associated with post-reconstruction pelvic floor complaints. Previous delivery setting (hospital, community health centre, midwife, or traditional birth attendant) was not significantly associated with the presence of complaints (p=0.738). Furthermore, higher infant birth weight (p=0.004) and overweight or obese BMI were associated with a higher riskof experiencing pelvic floor complaints after reconstruction (p<0.001).

Discussion

This study is a descriptive study of OASIs patients from 2021 to 2024. The research subjects were recruited from Hasan Sadikin Hospital in Bandung, Indonesia, which is a teaching hospital. In this study, the incidence of OASIs in patients from 2021 to 2024 was found to be 2.16%. These findings are similar to the incidence reported in OASIs patients using samples from three hospitals in Jakarta, Indonesia, from 2014 to 2016, with an incidence ranging from 2.4 to 4.1%.[3] When compared globally, the findings of both incidence values in Indonesia are still within the range found, which is 0.5–17%.[2] Recent systematic reviews and meta-analyses similarly reported that the incidence of OASIs varies considerably between settings, largely owing to differences in patient characteristics, delivery practices, and case ascertainment methods.[7,8]

The incidence of post-reconstruction pelvic floor complaints in this study was 37.7%. When compared to findings in previous studies examining pelvic floor complaints in OASIs patients, a range of 3.7–74% was found.[9,10] This indicates that the findings in this study are not substantially different from those in other studies. Differences in incidence may be influenced by patient characteristics, sample size, and

Table 1 Baseline Characteristics of Study Subjects

Characteristics	Group		p-value
	Post-Reconstruction Pelvic Floor Complaints Present (>45)	Post-Reconstruction Pelvic Floor Complaints Absent (≤45)	
Age (years)			
Mean (SD)	30.04(6.45)	27.79(6.61)	0.082
Range	22–52	17–40	
Infant Birth Weight (gram)			
Mean (SD)	3360.87(420.75)	3086.84(312.94)	0.004
Range	2500–4000	2500–4000	
Parity			
Primipara	9(39.1%)	20(52.6%)	0.306
Multipara	14(60.9%)	18(47.4%)	
Occupation			
Housewife	17(73.9%)	33(86.8%)	0.015
Entrepreneur	2(8.7%)	5(13.2%)	
Merchant	4(17.4%)	0(0%)	
Previous Delivery Setting			
Hospital	3(13.0%)	5(13.2%)	
Community Health Centre	1(4.3%)	1(2.6%)	0.738
Midwife	17(73.9%)	31(81.6%)	
Traditional Birth Attendant	2(8.7%)	1(2.6%)	
Vaginal Delivery			
Spontaneous	20(87.0%)	36(94.7%)	0.356
With Vacuum/Forceps	3(13.0%)	2(5.3%)	
Episiotomy			
Yes	10(43.5%)	18(47.4%)	0.768
No	13(56.5%)	20(52.6%)	
Delivery with Induction/Augmentation			
Yes	3(13.0%)	5(13.2%)	1.00
No	20(87.0%)	33(86.8%)	
Body Mass Index			
Normal	9(39.1%)	35(92.1%)	<0.001
Overweight	10(43.5%)	1(2.6%)	
Obesity	4(17.4%)	2(5.3%)	

Table 1 demonstrates the number of OASIs patients interviewed using the PFDI regarding the presence or absence of post-reconstruction pelvic floor complaints along with their baseline characteristics.

other factors.

The baseline data in this study that were found to be significantly associated with pelvic floor complaints were infant birth weight, occupation, and body mass index, with p-values of 0.004, 0.015, and <0.001, respectively. In this study, it was found that the average birth weight of babies born to mothers with pelvic floor complaints was higher than that of mothers without complaints (3360.87 vs 3086.84 grams). These findings are consistent with a study conducted by Djusad & Liem, which found that as the weight of the baby increased, so did the severity of perineal injury in the mother.[3] There is a mechanism that may underlie the reason behind this finding, related to levator ani muscle (LAM) injury. The LAM is highly susceptible to excessive traction at the end of the second stage of labour, which can cause muscle damage. Increased LAM damage was found to be greater in women who gave birth to heavier babies.[11]

This study showed that occupation was significantly associated with pelvic floor complaints (p=0.015), with the highest proportion among merchants (4/4; 100%) compared with housewives (17/50; 34.0%) and entrepreneurs (2/7; 28.6%). There are several factors that may underlie the reasons behind this finding. In a study conducted by Chen et al., a high prevalence of pelvic floor dysfunction was found among female nurses. It was found that this association is caused by heavy lifting, pushing, and carrying at work, delayed toileting at work, and fluid intake.[12] Although the professions being compared differ, the findings of that study may indicate the reasons behind the high incidence of pelvic floor complaints among merchants. Further studies are needed to identify the specific factors among merchants with pelvic floor complaints.

This study showed a high prevalence of pelvic floor complaints in overweight patients (90.9%; 10/11), but the number decreased in obese patients (66.7%; 4/6). Kapaya *et al.* found that a BMI above 30 kg/m² reduced the risk of OASIs by more than 50% (Odds Ratio [OR] 0.4; 95% Confidence Interval [CI] 0.2–0.5).[13] This is supported by Lindholm and Altman, who reported that increased fatty tissue in obese individuals increases tissue elasticity, thereby reducing the risk of tearing during childbirth.[14] Other studies report that obese individuals have higher skin resistance to tension, which may be protective against OASIs.[15] It should be noted that these studies examined the risk of primary OASIs occurrence rather than post-reconstruction pelvic floor complaints; therefore, this comparison should be interpreted with caution, and further studies examining the specific relationship between BMI and post-reconstruction pelvic floor complaints are needed.

This study has several limitations, including Inkonsisten dengan Results: total kasus 2021–2024 = 61 (15+8+17+21) dan seluruh 61 pasien diwawancarai (Tabel 1: 23 + 38) because almost all patients were referred and did not live near the study site. Furthermore, there is a possibility of recall bias because this is a retrospective study. In addition, this study had a small sample size and may not be representative of the general population. Structured post-reconstruction counselling and follow-up may also help patients better recognize and report pelvic floor symptoms, which in turn has been associated with an improved quality of life among women affected by OASIs.[16]

Conclusion

The incidence of OASIs varies from centre to centre and may be influenced by patient characteristics. This study found that the incidence of OASIs was 2.16% with the incidence of pelvic floor complaints after reconstruction being 37.7%. However, this may not represent the general population.

Therefore, further research with a larger sample size is needed.

Conflict of Interest

The authors declare no conflict of interest related to this study.

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Artificial Intelligence Usage Statement

No artificial intelligence tools were used in the design, data collection, data analysis, or interpretation of results in this study. Artificial intelligence-assisted software was used solely to support language editing and manuscript formatting, and all scientific content remains the sole responsibility of the authors.

Author Contribution Statement

ELD contributed to the conception and design of the study, data collection, data analysis and interpretation, and drafting of the manuscript. MRAS contributed to data collection and critical revision of the manuscript. BH contributed to the study supervision, critical revision of the manuscript, and final approval of the version to be published. RKP contributed to the conception and design of the study and final approval of the version to be published. All authors read and approved the final manuscript.

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Data Availability Statement

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

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