Original Article

Inevitable Bladder Injury in PAS Disorder

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Abstract:
Introduction: The condition is called Placenta Accreta Spectrum as it involves a range of severities (placenta accreta, increta and percreta) that correlates the depth of invasion of the uterine wall. According to FIGO classification PAS 3b is the condition of deep invasion of placenta into nearby organ or tissue commonly the bladder. People who have had multiple C sections, other placental disorders, or a history uterine surgery are at higher risk of developing placenta accreta. This condition can be life threatening. **Objectives**: The main purpose of the study was to Report (1) The incidence, (2) Cause of lower urinary tract injury especially bladder during caesarean section in placenta accreta spectrum disorders. **Material and Methods**: It is a retrospective analysis from January 2024 to September 2024 at Rangpur Medical college Hospital Gynae department. A dedicated multidisciplinary team was involved to deliver tailored management for each patient. In this study previous caesarean section, degree of placental adhesion and type of surgery with complication were reported. **Result**: 24 cases having PAS disorders with history of previous one, two or three C-section were included in the analysis. 24 patients underwent peripartum hysterectomy where 14 patients, that is 58.33% patient needed urinary bladder repair as they had placenta accreta grade 3b. Among 24 patients 7 patients (29.16%) with PAS grade 3b had history of previous one C-section, 6 patients (25%) had history of previous 2 C-section and one patient (4.16%) had previous 3 C- section. **Conclusion**: Though advances occurred in the prenatal diagnosis and management of PAS disorders in tertiary hospitals surgical complications mainly involving urinary system occurs in a significant proportion of women undergoing surgery for PAS. The result of the analysis highlights the need for multidisciplinary management of women with PAS disorder in center with high expertise in perinatal diagnosis and surgical management of these condition.

Keywords: Bladder injury, PAS

Introduction:
Placenta Accreta Spectrum Disorders (PASD) is associated with high maternal mortality and morbidity worldwide; this complication refers to an obstetrical challenge in pregnant women health care. The rate of PASD ranges from 0.2% to 3% of the total number of deliveries. PAS disorder includes placenta accreta in which the placental villi adhere to the myometrium, placenta increta when invasion of myometrium and in severe form, placenta percreta when invasion through the myometrium to serosa and surrounding organs. There are three grading of placenta percreta where grade 3a is limited to and including uterine serosa, grade 3b is urinary bladder invasion and grade 3c is invasion into

other pelvic tissue/organs. Depending on number of placental cotyledons involved divided into focal, partial or total.[1]

The etiology of PAS is likely to be failure of decidualization in the area of previous uterine scar, leading to placental trophoblastic invasion of the myometrium. PAS has a range of invasive degree,from organ confined to invading adjacent organs.Due to its proximity to uterus, bladder is the most commonly involved organ in PAS.At laparotomy placental villi are seen to be invading into the bladder but no other organs-clear surgical planes cannot be identified between the bladder and uterus. (FIGO Grade 3b)[2,3]

FIGO classification PAS includes:

Both abnormally adherent placenta (placenta acreta) and abnormally invasive placenta (AIP-including placenta increta and placenta percreta). In the abnormally adherent placenta, the implantation of the villi is in direct contact with the myometrium in the absence of an obvious plane of cleavage, while in AIP the villi invade deeply into the myometrium and surrounding organs, FIGO defines these as Grade1, 2 and 3.

The incidence of massive operative blood loss was significantly higher among patient with bladder involvement than among those without bladder involvement.[4]

The most common risk factors for PAS are surgery or manipulation of the endometrium including CS, myomectomy, curettage, hysteroscopy or endometrial ablation with cumulative risk per procedure. Placenta previa with a history of prior CS is an important risk factor.[5] Other established risk factors are IVF, Asherman'ssyndrome, multiparity and advanced maternal age. Women with risk factors should undergo imaging and diagnosis in second or third trimester at centers with experience in the ultrasonographic diagnosis of PAS.

According to suggestion of European Working Group on Abnormally Invasive Placenta for Ultrasound findings

- In 2D Gray scale Bladder wall interruption that means loss or interruption of bright bladder wall (hyperechoic band or line between uterine serosa and bladder lumen)
- In 2D Color Doppler Uterovesical hypervascularity striking amount of Color Doppler signals seen between myometrium and posterior wall of bladder, this sign probably indicates numerous closely packed tortuous vessels in that region.[6]

Objective:

The main purpose of the study was to report

1. The incidence
2. Cause of lower urinary tract injury specially bladder during caesarean section in PAS Disorder.

Materials and Methods:

It is a retrospective analysis from January 2024 to September 2024 at Rangpur Medical College Hospital Gynae Department. A dedicated multidisciplinary team was involved to deliver tailored management for each patient. In this study previous caesarean section, degree of placental adhesion and type of surgery with complication were reported.

Number of cases: 24

Results:

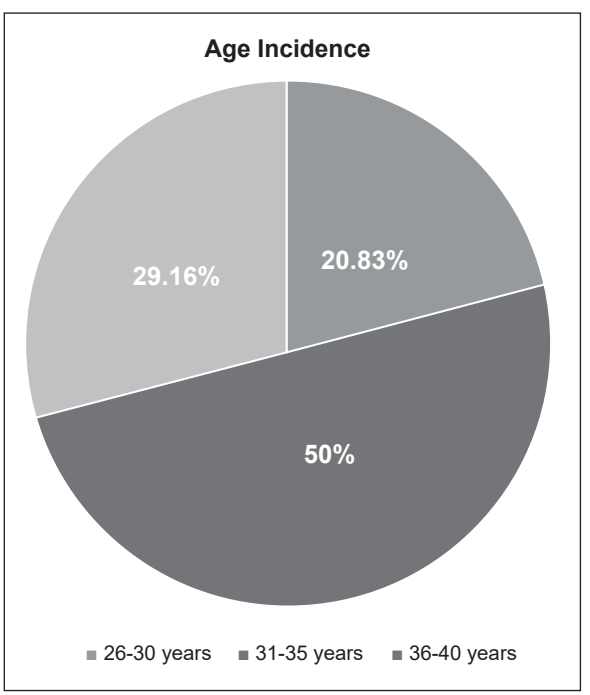

Figure-1: Age incidence

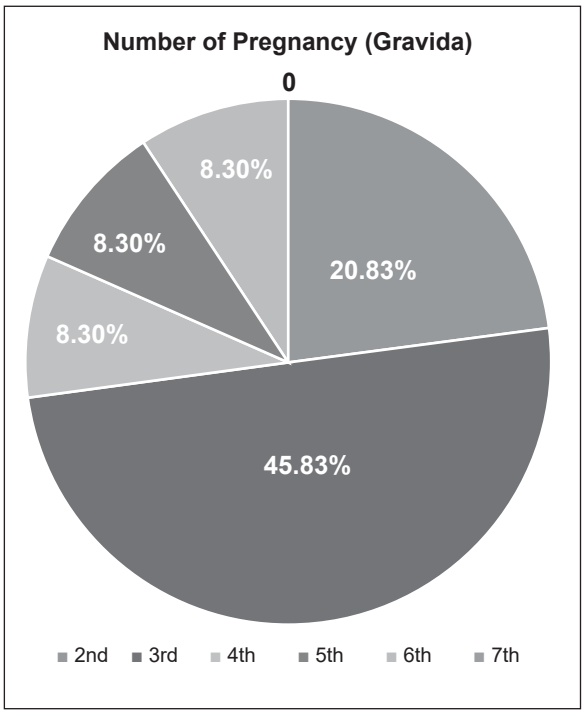

Figure-2: Number of pregnancy (Gravida)

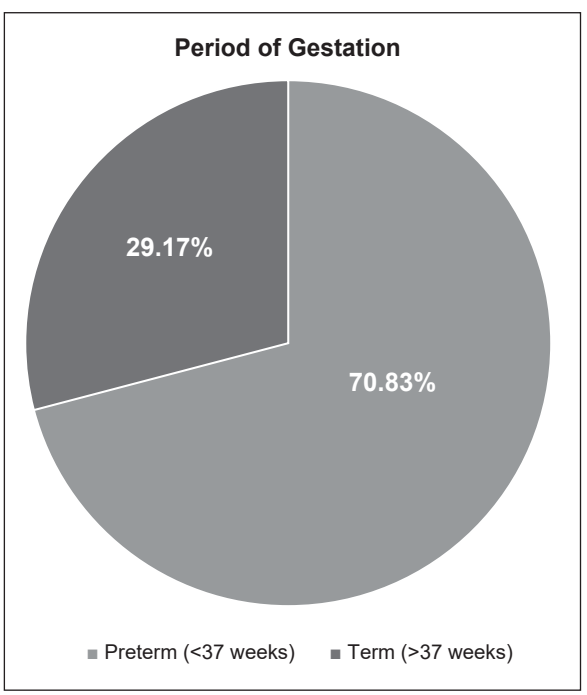

Figure-3: Period of gestation

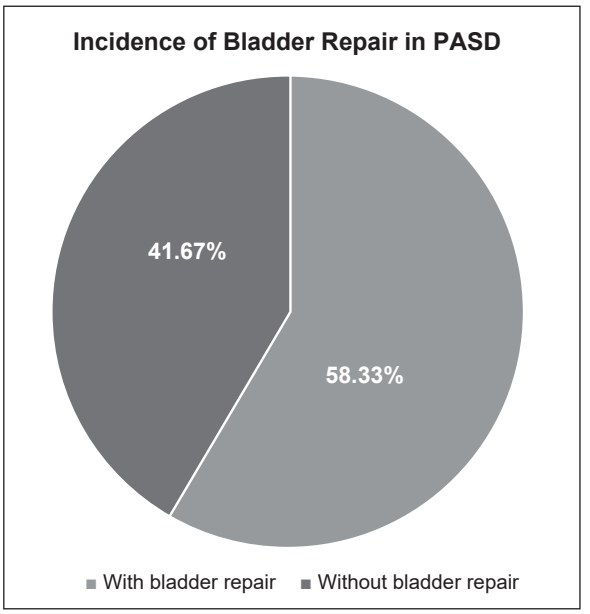

Figure-4: Incidence of bladder repair in PASD

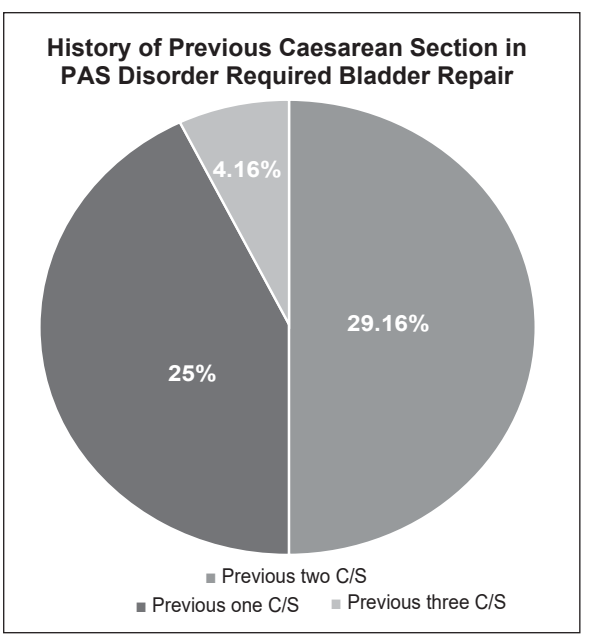

Figure-5: History of previous caesarean section in PAS disorder required bladder repair

- According to the study 50% of patients belong between 31-35 years of age. Most of them, 45.83% were 3rd gravida having PAS disorder.
- 70.83% of them had pre-term gestation.
- During peripartum hysterectomy 58.33% needed bladder repair due to PAS disorder Grade 3b.

- Among 24 patients 29.16% patient had history of previous one caesarean section, 25% had two c-section and 4.16% had 3 C-section who underwent bladder repair.

Discussion:

- PAS disorder with bladder involvement is a rare but catastrophic condition.
- During operation procedure we found invasive placental tissue attached firmly to the bladder wall and vastly induce vascularization rather than passing through the bladder.
- It matches with the study ofJ.L Hecht, R.Baergen, L.M Ernst, P. Katzman, S.M Jacques, E. Jaunl aux,et al.[7]
- As all the 24 patients needed peripartum hysterectomy due to PAS disorder. In our study 58.33% of patients needed bladder repair due to PAS disorder 3b during peripartum hysterectomy.

It matches with the study of European Journal of Radiology volume 160, March 2023, 110695 Bladder involvement in placenta accreta spectrum disorder with placenta previa: MRI findings and outcome correlation.) where of the 48 patients 27 did not have bladder involvement.

- The number of previous caesarean deliveries and preoperative sonographic suspicion of PAS disorder were associated with bladder injury in subanalysis.8 In our study 29.16% of patients had history of previous one c section leads to bladder repair. So, the study matches with our study.[8]
- Severe hemorrhage occurs upon placental separation, leading to critical situation of massive operative bleeding.
- The management of the cases with bladder invasion varies from surgery expertise and the equipment of an institute.
- Nevertheless, treatment planning should always involve a multidisciplinary team composed of experienced obstetrician, anesthetists, urologist, neonatologist and intervention radiologist.

Conclusions:

- PAS is potentially life-threatening condition. Though advances occurred in prenatal diagnosis and management of PAS disorder in tertiary hospitals surgical complications mainly involving urinary system occurs in a significant proportion of women undergoing surgery for PAS.
- The result of the analysis highlights the need for multidisciplinary management of women with PAS disorder in center with high expertise in perinatal diagnosis and surgical management of these condition.

Limitations

- Short study period
- Small sample size
- No interventional radiologist
- Most of the patients were diagnosed incidentally

References:

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