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GYNAE SPECTRUM

Dear Doctor,
Greetings from Micro Labs. We are happy to bring you "**Gynae Spectrum**", which contains latest and interesting news in the field of Obstetrics and Gynecology.

This issue contains:

1. **Risk factors for Shoulder dystocia among women delivering <3500 gram's new-born.**
2. **Impact of intraovarian PRP injection on infertile women with diminished ovarian reserve.**
3. **Evaluation of safety and efficacy of prophylactic abdominal aortic balloon occlusion for patients with type III caesarean scar pregnancy.**
4. **Case report on sigmoid colon schwannoma in premenopausal woman.**

Should you require any article or, medical information, please feel free to contact us medicalservices@microlabs.in

Looking forward to your valuable feedback.

Best Regards,

Medical Team, Micro Labs Limited



Risk factors for Shoulder dystocia among women delivering <3500 grams newborn

Fetal head and abdominal circumference were the better predictor of Shoulder dystocia

Introduction

Shoulder dystocia (ShD) is defined as the failure to deliver the baby's shoulders naturally or with mild pulling after the delivery of the baby's head. Approximately 0.15%–3.0% of vaginal deliveries experience this complication.¹ Although shoulder dystocia is considered to be an extremely unpredictable condition, certain risk factors, such as fetal macrosomia and maternal diabetes and obesity, have been identified. Shoulder dystocia most frequently results in clavicle fractures and transient or permanent brachial plexus injuries in newborns, but at its worst, it can result in asphyxia, hypoxic ischemic encephalopathy, and fetal death.² This study was conducted to identify risk factors for ShD among women delivering <3500g new-born.

Methods

A retrospective case–control study was conducted among women who delivered a singleton neonate weighing less than 3500 g vaginally. The study group was divided into two groups, ShD and no ShD. From the electronic health records, clinical information about maternal, obstetric, and delivery features was collected. The body mass index (BMI), which was calculated as weight in kilograms divided by height in meters squared, was utilized at the time of admittance to the delivery room. The head circumference (HC), biparietal diameter (BPD), abdominal circumference (AC), and femur length (FL) were among the biometric characteristics measured by ultrasonography. The International Society of Ultrasound in Obstetrics and Gynecology established criteria that the ultrasound unit followed in taking and recording these measurements. The Hadlock formula was used to estimate the fetal weight. Based on the attending obstetrician's assessment, ShD was diagnosed and promptly recorded in the electronic health records. Univariate and multivariable regression method was used to compared cases of ShD to other deliveries by.

Results

The study included 79 out of 41092 (0.19%) cases of ShD were included in this study. It was found that ShD was associated with maternal factors such as pre-gestational diabetes ($P=0.001$), operative vaginal delivery ($P<0.001$), a history of previous cesarean delivery ($P=0.003$), parity of three or more deliveries ($P=0.004$), and maternal age ≥ 35 ($P=0.030$). Lower mean maternal height was found in ShD group. Higher mean birth weight was found in ShD group ($P<0.001$). Birthweight above 3250 and sonographic fetal AC had a significant association between neonatal characteristics and ShD ($P=0.001$). In multivariable regression analysis, operative vaginal delivery, vaginal birth after caesarean, ratio between the abdominal circumference (AC), and the biparietal diameter (BPD), and the ratio between the AC and the head circumference (HC) were independently associated with ShD occurrence (Figure 1).

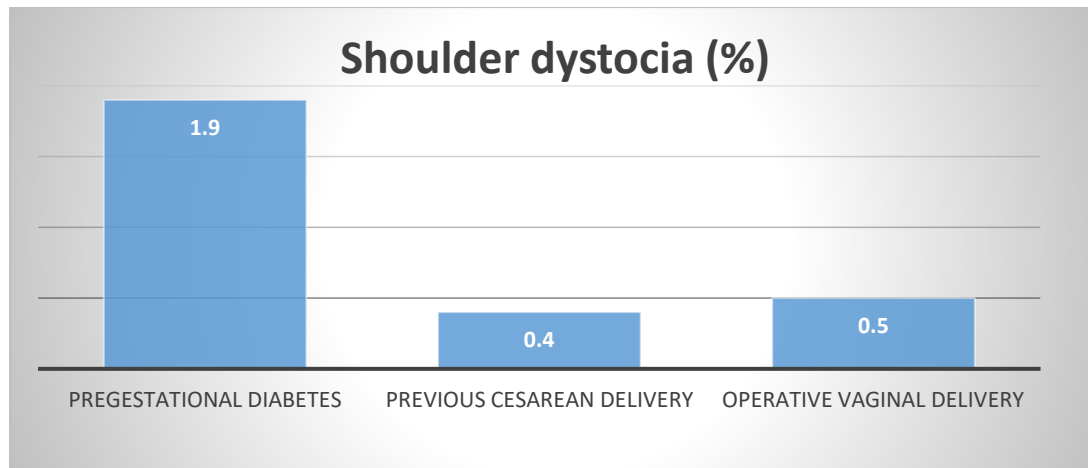


Figure 1. Multivariate analysis showing factors associated with shoulder dystocia.

Discussion

This study investigated the relationship between ShD and characteristics associated with neonates weighing less than 3500 g. It found that ShD was independently correlated with surgical vaginal delivery, vaginal birth after caesarean (VBAC), and the ratios of abdominal circumference to head measurements. Within the cohort, term neonates weighing less than 3500 g had a rate of 0.19% for ShD and no cases of ShD below 2500 g were documented.¹ Youssefzadeh AC et al. showed ShD was reported in 228120 deliveries (23.0 per 1000) and the risk factors for ShD were large for gestational age, diabetes mellitus, and gestational, and vacuum-assisted delivery.³

Conclusion

Operative vaginal birth has been associated with ShD in deliveries <3500 g. The percentage between fetal head and abdominal circumference were the better predictor of ShD than the new-born fetal weight and VBAC was associated with ShD.

References

1. Levin G, Meyer R, Cahan T, et al. Shoulder dystocia in deliveries of neonates <3500 grams. *International Journal of Gynecology & Obstetrics*. 2023 Oct 21;00:1–6.
2. Heinonen K, Saisto T, Gissler M, Kaijomaa M, et al. Rising trends in the incidence of shoulder dystocia and development of a novel shoulder dystocia risk score tool: a nationwide population-based study of 800 484 Finnish deliveries. *Acta obstetrica et gynecologica Scandinavica*. 2021 Mar;100(3):538-47.
3. Youssefzadeh AC, Tavakoli A, Panchal VR, et al. Incidence trends of shoulder dystocia and associated risk factors: A nationwide analysis in the United States. *International Journal of Gynecology & Obstetrics*. 2023 Jan 27;162(2):578-589.

Impact of intraovarian PRP injection on infertile women with diminished ovarian reserve



Introduction

The platelet-rich plasma (PRP) fraction found in the upper portion of autologous blood is a novel therapeutic alternative referred to as "orthobiological" in modern medicine. The platelet-rich portion of the patient's own blood is centrifuged to produce PRP.¹ PRP contains several growth factors and cytokines. Platelet-rich plasma (PRP) containing platelet-derived growth factors (PDGF) on endometrial growth and provided significant results.² Several studies suggested that in women with low ovarian reserve, intraovarian PRP injection significantly increases the number of oocytes, M2 oocytes, and grade 1 embryos.¹ Therefore, the purpose of this study was to examine the effects of intraovarian PRP injection on infertile women with diminished ovarian reserve, specifically focusing on the oocyte count, oocyte quality, and endometrial thinning.

Following PRP injection, there was a significant increase in the basal endometrial thickness, basal follicle number (>14 mm), estradiol value, oocyte count, and M2 oocyte count.

Methods

A retrospective assessment of cases who had intraovarian PRP injection at the in-vitro fertilization (IVF) unit were included. Study included patients with low ovarian reserve who were between the ages of 20 and 50 and were infertile (could not conceive for a year). Of the 120 cases, only 60 that met the inclusion criteria. Prior to and within a period of 1-6 months after the PRP procedure, the endometrial thickness, follicle count of greater than 14 millimetres, estradiol levels, follicle-stimulating hormone (FSH) levels, and antral follicle count were measured during the menstrual cycle. 20 non-pregnant patients were admitted to the post-PRP IVF cycle, who had IVF before and 4-6 months after PRP. Oocyte and M2 oocyte quantification was conducted both prior to and following PRP treatment.

Results

About 32 (53.3%) of the individuals had undergone atleast one in vitro fertilisation (IVF), 16 (26.7%) had atleast one intrauterine insemination (IUI), and 9 (15%) had a history of abortion. Of the participants, 43 (71.79%) were primary infertile women and 17 (28.1%) were secondary infertile. 8 of the secondary infertile patients (47%) gave birth to live children, 7 (41.2%) had one abortion, and 2 (11.8%) had two or more abortions. 52 patients (86.7%) received one PRP session, 5 patients (8.3%) received two sessions, and 3 patients (5%), received three sessions. Following PRP injection, there was a significant increase in the basal endometrial thickness, basal follicle number (>14 mm), estradiol value, oocyte count, and M2 oocyte count. Following PRP injection, the basal FSH levels dramatically reduced. The number of oocytes obtained during oocyte pick-up (OPU) increased by 300% in the pregnant group, but only by 125% in the non-pregnant group. The number of oocytes and M2 oocytes was significantly higher in the pregnant group. Study showed that as the duration of infertility increases, spontaneous pregnancy rates will decrease in patients undergoing PRP, but they may become pregnant through IVF.

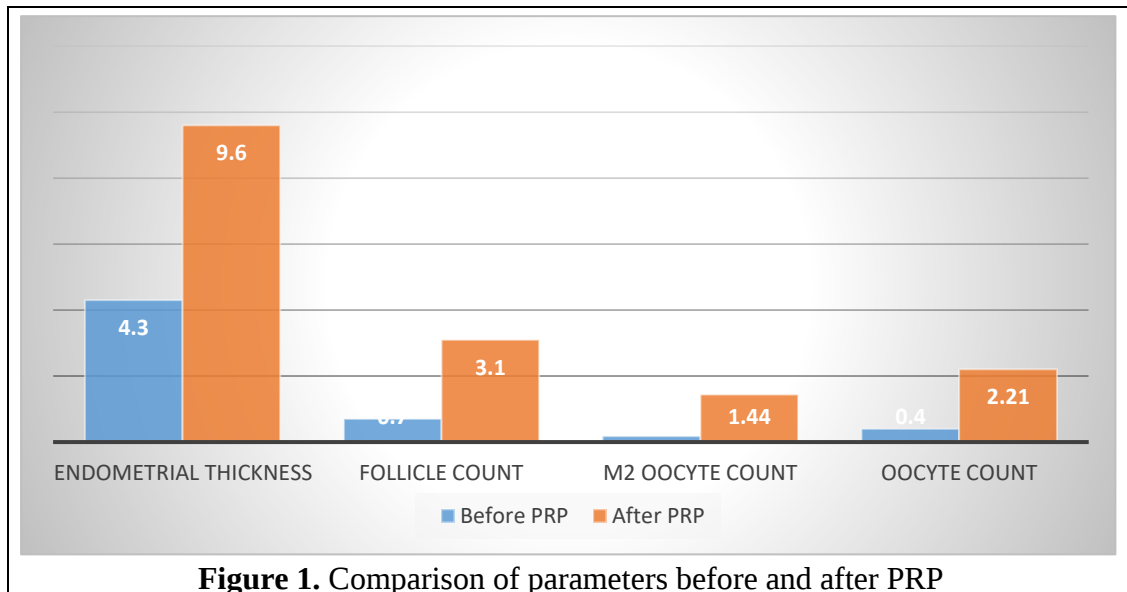


Figure 1. Comparison of parameters before and after PRP

Discussion

Decreased follicle counts result in lower-quality oocytes, which in turn cause a progressive decline in the proportion of pregnant women and live births. Fertile women's monthly fertility drops from 20% to 10% after the age of 35, and those with inadequate ovarian reserve are more likely to become infertile. The pregnancy rate among infertile patients with limited ovarian reserve was 28.4%. Following PRP treatment, a subgroup of these patients with less than three years of infertility had a considerably higher chance of spontaneous conception (32.5% pregnancy rate).¹ Çakiroglu et al. conducted a comparative study to evaluate the effects of intraovarian PRP treatment on 510 women who had inadequate ovarian reserve. Following PRP administration, 22 women (4.3%) became pregnant, 14 women (2.7%) were excluded from the study, and 474 women (92.9%) who underwent ART also had higher levels of anti-Müllerian hormone (AMH) and antral follicle count (AFC).³

Conclusion

Women with low ovarian reserve and infertility for less than three years, intraovarian PRP injection can be considered as a therapy. Using PRP therapy at a reduced cost has demonstrated efficacy in achieving pregnancy rates within a timeframe of less than three years of infertility.

References

1. Safarova S, Akdulum MF, Guler I, Bozkurt N, et al. Does Platelet-Rich Plasma Treatment Increase In Vitro Fertilization (IVF) Success in the Infertile Population? *Cureus*. 2023 Oct 17;15(10): e47239.
2. Zargar M, Pazhouhanfar R. Effects of intrauterine autologous platelet-rich plasma infusions on outcomes in women with repetitive in vitro fertilization failures: a prospective randomized study. *Clin. Exp. Obstet. Gynecol.* 2021;48(1):179–184.



3. Cakiroglu Y, Saltik A, Yuceturk A, et al. Effects of intraovarian injection of autologous platelet rich plasma on ovarian reserve and IVF outcome parameters in women with primary ovarian insufficiency. Aging (Albany NY). 2020;12:10211-22.

Evaluation of safety and efficacy of prophylactic abdominal aortic balloon occlusion for patients with type III caesarean scar pregnancy

Introduction

Caesarean scar pregnancy (CSP) is described by the presence of a gestational sac embedded in the scar from a previous caesarean delivery.

Abdominal aortic balloon occlusion is safe in treatment of patients with type III Caesarean scar pregnancy

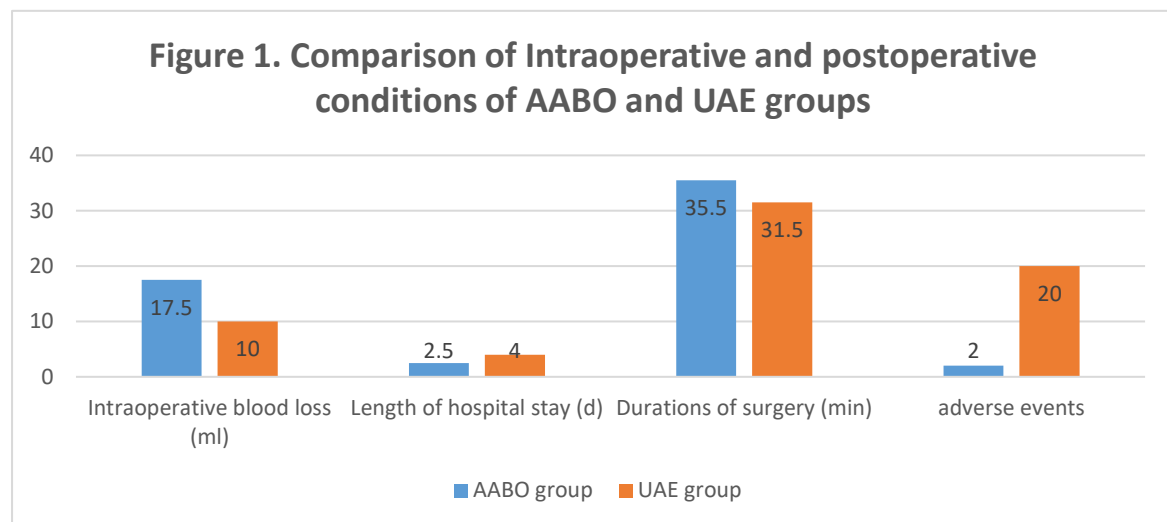
The 2016 Chinese Expert Opinion categorises CSP into three types: type I, type II, and type III. The gestational sacs that were completely implanted in the myometrium of uterine scar and protruding towards the bladder or forming an amorphous mass with rich vascularity in the caesarean scar with the myometrium between the gestational sac and the bladder measuring less than 3 mm thick were classified as type III CSP.¹ CSP represents one of the rarest forms of endometrial pregnancy. Transvaginal ultrasonography remains as the main diagnostic tool for CSP diagnosis.² During obstetric surgery, abdominal aortic balloon occlusion (AABO), an important method to temporarily and manually block the blood flow, has been used extensively to stop severe bleeding.³ Studies has shown that in patients with placenta previa planned for caesarean sections, prophylactic AABO can successfully decrease intraoperative and postoperative blood loss and lower the risk of adverse outcomes.⁴ Hence, this study aimed to evaluate the safety and effectiveness of prophylactic AABO and uterine artery embolization (UAE) for patients with type III CSP.

Methods

A prospective cohort study was conducted among patients who were diagnosed and confirmed with type III CSP. Eligible patients were divided into abdominal aortic balloon occlusion (AABO) group and the uterine artery embolization (UAE) group based on the preconditioning regimen. In the AABO group, patients diagnosed with type III CSP were treated with abdominal aortic balloon occlusion prepositioning under digital subtraction angiography (DSA) while undergoing hysteroscopy and negative pressure suction. In the UAE group, patients with type III CSP underwent DSA treatment. The clinical outcomes measured included intraoperative blood loss, time under DSA, body surface radiation dose, duration of surgery, postoperative serum β -hCG level, hospitalization expenses, duration of hospital stay, time to serum β -hCG normalization, and safety.

Results

A total of 68 patients were confirmed with type III CSP and randomized in 1:1 ratio to the AABO group (34 patients) or the UAE group (34 patients). In both groups, the operation was successful. In the AABO and UAE groups, the median intraoperative blood loss volume was 17.5mL and 10 mL, respectively ($P=0.264$). The duration of surgery for the UAE group and the AABO group were 31.5 and 35.5 minutes, respectively ($P=0.300$). Compared to the UAE group, the AABO group had a significantly shorter period under DSA ($P<0.001$). Compared to the UAE group, the AABO group had a significantly lower body surface radiation exposure ($P<0.001$). There was no significant difference in the β -hCG levels between two groups. Serum levels of FSH, LH, and E2 were assessed six months following surgery in both the AABO and UAE groups. The FSH, LH, and E2 levels in the AABO group were 78.84 U/L, 7.96 U/L, and 5.63 pmol/L. The FSH, LH, and E2 levels in the UAE groups were 66.1 U/L, 8.07 U/L, and 6.14 pmol/L, respectively. In the AABO group, the incidence of adverse events was lower than in the UAE group (5.9% vs. 58.8%) ($P<0.001$) (Figure 1).



Discussion

CSP is regarded as an uncommon form of ectopic pregnancy that needs to be terminated due to increased risk of bleeding. In this study, AABO or UAE was administered as a prophylactic therapy to 68 individuals with type III CSP. Prophylactic AABO and UAE are both beneficial treatments for patients with type III CSP, but AABO is safer and has fewer side effects than UAE. For AABO and UAE, the intraoperative blood loss volume was 17.5 mL and 10 mL, respectively. These results strongly indicate that both techniques can reduce intraoperative bleeding and preserve uterine integrity.¹ Currently, pelvic blood supply is blocked by abdominal aortic balloon occlusion during obstetric and gynaecologic procedures, which effectively controls bleeding in the abdomen aortic plane.⁵

Conclusion

Patients with type III CSP can benefit from prophylactic treatments such as UAE and AABO. Compared to UAE, AABO was well tolerated with lesser complications.

References



1. Wu J, Guo R, Li L, Chu D, Wang X. Effectiveness and safety of prophylactic abdominal aortic balloon occlusion for patients with type III caesarean scar pregnancy: a prospective cohort study. *BMC Pregnancy and Childbirth*. 2023 Oct 25;23(1):754.
2. Valasoulis G, Magaliou I, Koufidis D, Garas A, et al. Caesarean Scar Pregnancy: A Case Report and a Literature Review. *Medicina*. 2022 May 30;58(6):740.
3. Zheng W, Dou R, Yan J, et al. Intra-abdominal aortic balloon occlusion in the management of placenta percreta. *Chin Med J (Engl)*. 2022;135:441–6.
4. Huo F, Liang H, Feng Y. Prophylactic temporary abdominal aortic balloon occlusion for patients with pernicious placenta previa: a retrospective study. *BMC Anesthesiol*. 2021;21:134.
5. Zhang JH, Duan HJ, Zhao YP, et al. Preliminary study on the application of abdominal aortic balloon occlusion in the treatment of cesarean scar pregnancy. *Zhonghua Fu Chan Ke Za Zhi*. 2020;55(8):516–520.

Case report on sigmoid colon schwannoma in premenopausal woman

Introduction

Schwannomas are a rare form spindle cell tumour of adult peripheral nerve that originate as schwann cells. Schwannomas in the digestive tract

Transvaginal ultrasonographic examination should be used to evaluate the entire pelvic organ system

mostly affect the stomach (83%), small bowel (12%) and colon (5%).¹ Most of the time, this tumor may present as obstructive adenocarcinoma with symptoms such as obstruction, bleeding, pain, and tenesmus, but most of the time it is asymptomatic.² Schwannomas are benign tumours, however there is a chance that they could develop into malignant degeneration. This risk is directly correlated with the tumor's size. In all cases, radical surgery is the gold standard because the outcomes of radiation and chemotherapy are still unknown.¹ This report describes a case of sigmoid colon schwannoma incidentally observed at transvaginal ultrasonography.

Case presentation

A 46 year old female patient had a complaint of suffering from secondary amenorrhea and nonspecific intermittent pelvic pain associated with constipation. The following hormone tests were consulted in order to rule out an early menopause, follicle-stimulating hormone (FSH) 5.84 UI/L; luteinizing hormone (LH) 2.5 UI/L; prolactin (PRL) 17.2 ng/mL, progesterone 0.15 ng/dl, 17-b-estradiol 65 ng/l; thyroid-stimulating hormone (TSH) 1.25 µU/ml. A systematic transvaginal ultrasound examination was carried out. First, the anterior compartment was assessed while the ureters and bladder were in normal condition. When the uterus was examined, a homogenous hyperechoic echostructure thickening of 15 mm was found in the endometrium, which was incompatible with her secondary amenorrhea. A follicular unilocular thin-walled cyst measuring 30 mm with anechoic contents was found on the left ovary. Finally, an intraluminal solid mass measuring 12 × 11 mm with increased peripheral and central

vascularity was found during the posterior compartment evaluation at the sigmoid-rectal level (Figure 1).

The initial hypothesis was that there was a neuroendocrine tumour (NETT) or rectal polyp, in this instance an immediate colonoscopy was prescribed. Submucosal mass covered by normal mucosa sized about 1 cm in the sigmoid colon was confirmed during the colonoscopy (Figure 2). After transanal endosonography, a 12 × 12 mm ovalar hypoechoic lesion that originated from the submucosa in contact with the muscularis propria was confirmed to be present. Consequently, en-bloc resection was performed with endoscopic submucosal dissection. A well-demarcated lesion without encapsulation was observed during microscopic examination. Haematoxylin and eosin staining of the tumour during histopathology revealed that it was made up of spindle cells with low nuclear atypia and a low proliferation index (Ki-67 1%). The resection margins were free from the tumor. The tumour cells show high positivity to the S100 protein on immunohistochemical examination; CD 117 (C-KIT), CD34, and Smooth Muscle Actin (SMA) were negative. Ultimately, a benign schwannoma of the sigmoid colon was identified. Three days later, the patient was discharged with no complications from the surgery.

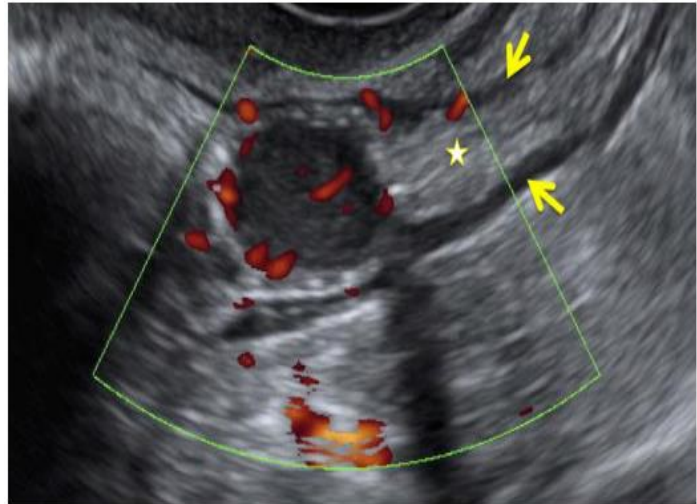


Figure 1. Ultrasonographic transvaginal showing intraluminal solid mass, with increased peripheral and central vascularity of 12x11 mm

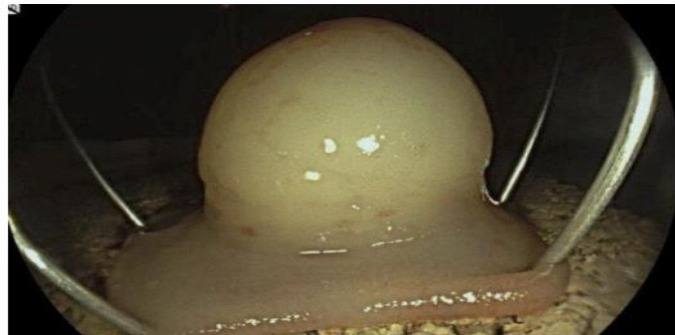


Figure 2. Macroscopic specimen showing submucosal mass covered by normal mucosa sized about 1 cm in the sigmoid colon.

Discussion

Gastrointestinal schwannomas are rare, especially in the colon and rectum. They generally present as intraluminal polyps or masses, the tumors can cause abdominal pain, colonic obstruction, or bleeding from ulcerations in the gastrointestinal tract. Since symptomatic tumors are rare, most schwannomas are discovered incidentally after surgery. The difference between benign and malignant stromal cell tumors can be determined by endosonographic features such as lymph nodes with malignant patterns, cystic spaces, and irregular extraluminal borders. In the present case, a transvaginal ultrasound examination revealed an intraluminal recto-sigmoid lesion that was treated with endoscopic submucosal dissection and finally diagnosed as a schwannoma.¹ Kim et al. reported a case of a 66-year-old female patient with sigmoid colon schwannoma who was asymptomatic. During a screening colonoscopy, a submucosal tumor of approximately 4 cm was found in the sigmoid colon. An



immunohistochemistry investigation confirmed the presence of S-100 positive tumour cells, leading to a definitive diagnosis that requires surgical excision. The preferred course of treatment was surgical resection with free negative margins.³

Conclusion

In this case, a premenopausal woman was diagnosed with schwannoma, a rare rectal lesion, at an early stage using transvaginal ultrasonography. The tumour was treated by endoscopic excision. Nowadays, transvaginal ultrasonographic examination should be used to evaluate the entire pelvic organ system, not only the uterus and ovaries. Therefore, a conservative treatment, as the endoscopic resection in the present case, could be made possible by a preoperative non-invasive and early stage diagnosis.

References

1. Selntigia A, Neri B, Russo C, Martire FG, Soreca G, Biasutto D, Di Matteo FM, Exacoustos C. A Rare Sigmoid-Colon Schwannoma in a Premenopausal Woman: A Case Report. *Acta medica Lituanica*. 2023;30(2):188-193.
2. Mokhtari M, Iranpour P, Haghighi AG, Ghahramani L. Schwannoma of the rectosigmoid colon. *Advanced Biomedical Research*. 2022;11:5.
3. Kim G, Kim SI, Lee KY. Case report: schwannoma of the sigmoid colon: a case report of a rare colonic neoplasm and review of literature. *F1000Research*. 2019;8:652.



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