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Case Report

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Idiopathic Non-puerperal Uterine Inversion in a Young Female: A Rare Case Report

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Non-puerperal uterine inversion is extremely unusual among adolescent females. To our knowledge this is the first case to be reported in such a young patient without an identifiable cause. Chronic menorrhagia, abdominal pain, and episodes of acute urinary retention were the patient's primary symptoms. Most recorded cases of uterine inversion have recognised causes, but the aetiology in this case was idiopathic, contributing to its rarity. The clinical and radiological evaluations first showed a cervical polyp, but magnetic resonance imaging of the pelvis was critical in verifying the uterine inversion. This case report emphasizes the diagnostic challenges of uterine inversion, which become considerably more difficult when dealing with young patients. Manual repositioning is the most common treatment for uterine inversion, and surgery is considered if manual repositioning is not possible.

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Introduction

Uterine inversion is a rare and serious condition necessitating emergency intervention. It is basically classified as puerperal and non-puerperal.[1] Puerperal uterine inversion is mostly noted during the third stage of labor with a reported incidence of around one case in 15000 deliveries.[2] The mean age of non-puerperal uterine inversion (NPUI) is 47**±17.2 years; most of the cases presenting after 45 years of age. They are mostly related with uterine fibroid and few of them are due to malignancies.**[3]The exact mechanism of NPUI is not clear but its association with polypoid uterine tumors is very frequent.[4] Trans-abdominal sonography (TAS) and magnetic resonance imaging (MRI) are important imaging tools to diagnose the condition although TAS has a limited value.[3] Magnetic resonance imaging is the modality of choice for this condition which shows Bull's eye appearance in axial view and U-shaped uterine cavity and inverted fundus into uterine cavity in sagittal view.[4] Uterine inversion requires immediate treatment for which manual reposition and various surgical techniques are available. Here, we report a case of uterine inversion in a 12 years young girl treated by manual uterine fundus repositioning which to our knowledge, is the first case in this age group having spontaneous inversion without any identifiable cause.

Case

A 12 years young girl who was apparently asymptomatic till three months back, presented to the department of Obstetrics and Gynecology of our institute with the chief complaints of prolonged menstrual bleeding and intermittent low grade abdominal pain. Her prior cycles were regular. She was initially admitted in a local hospital with the history of intermittent abdominal pain and urinary retention associated with fever and foul smelling vaginal discharge. She was treated for the same but referred to a higher centre for continuation of her vaginal bleeding despite medical treatment. In our institute, vulva appeared normal on external examination. Since patient was minor no vaginal examination was done. She was advised pelvic MRI to ascertain the nature and extent of lesion, if any, and the anatomical state of uterus and adnexa. Her MRI showed U-shaped uterus with loss of normal convex fundal contour on sagittal T1W, T2W and T1W Fat Sat scan (Figs.1 and 2). Uterus was thus upside down and fundus was protruding into the cervical canal and reaching up to upper vaginal canal. Bilateral broad ligaments were also pulled in and both adnexae sitting on to it were clearly visualized on axial T1 and T2 images (Figs. 3A and 3B). The

size of the uterus measured 6 cm x 4 cm and the endometrial thickness was 10 mm and in midline. Retrospectively, TAS was done and findings were consistent with MRI findings (Fig. 4). Based on imaging findings, the diagnosis of uterine inversion was made and finally managed by manual repositioning of the fundus back under general anaesthesia after taking informed consent from the patient's family. No uterine pathology was identified in intraoperative procedure causing inversion. The post-operative status of the patient was normal and discharged.

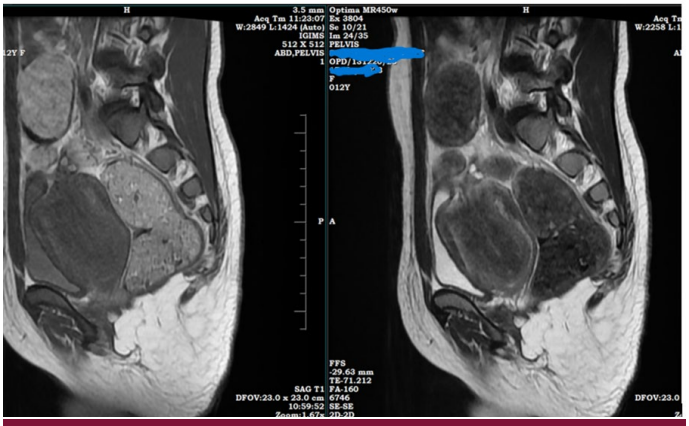

Fig 1A: Sagittal T1W **Fig 1B:** Sagittal T2W

Fig. 1A and 1B: U-shaped uterus with loss of normal convex fundal contour, fundus is protruding into cervical canal.

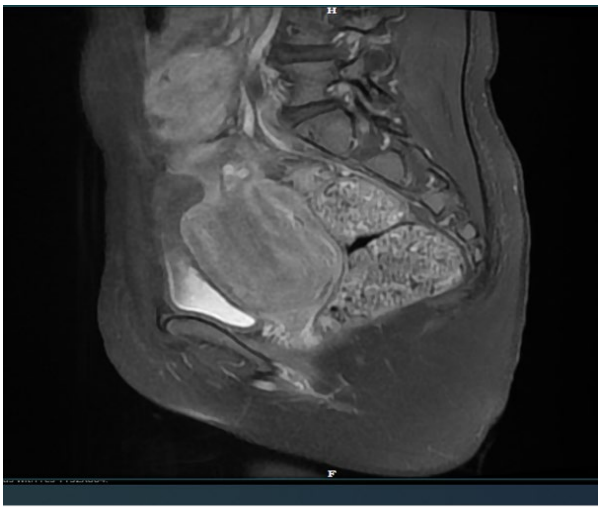

Fig 2: Sagittal T1W Fat saturation sequence showing fundus protruding into the cervical canal.

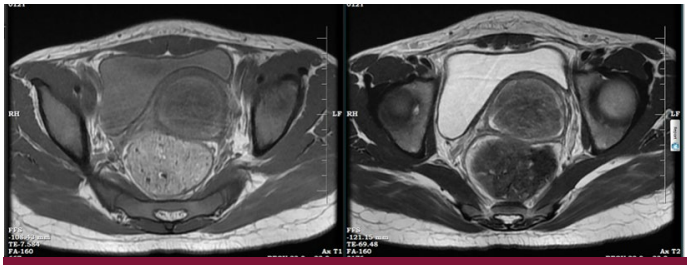

Fig 3A: Axial T1W **Fig 3B:** Axial T2W

Figs. 3A and 3B: Axial sections of pelvis showing target appearance of the uterus.

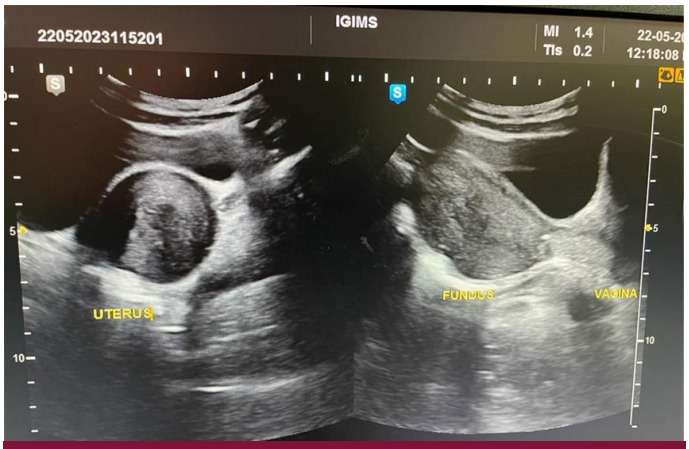

Fig. 4: Axial and Sagittal section of uterus on ultrasound showing abnormal uterine contour and target sign in axial image.

Discussion

Non-puerperal uterine inversions are rare although some reports suggest that they comprise one-sixth of all inversions.[4] here have been several reported cases of NPUI from 2016 onwards.[4] To our knowledge, our case is the second youngest female presenting with uterine inversion. The youngest girl was reported to be an 11 years girl, who presented with spontaneous vaginal mass protrusion in emergency unlike ours and was diagnosed with NPUI with endometrial polyp.[1] Alsahabi et al. presented a case of 45 years nulliparous woman with anaemia and haemorrhage, similar to our case but was diagnosed with chronic uterine inversion secondary to fibroid.[4] In our case, no obvious aetiology was identified, hence likely to be idiopathic which has not yet been recorded to the best of our knowledge. Non-puerperal uterine inversion may be idiopathic or associated with such predisposing factors as benign uterine tumours in 70–80 percent of cases (leiomyoma, endometrial polyps), or malignant tumour in the remaining, especially in young women.[5] Uterine inversion may be classified into four stages: (1) incomplete inversion of the uterus with the uterine fundus in the cavity, (2) complete inversion of the uterine fundus through the cervix, (3) complete inversion with the fundus

protruding through the vulva, and (4) complete inversion through the vulva of both the uterus and the vagina.[6] Strong symptomatic signs define the acute form, while the chronic form can be less symptomatic with pelvic pain, pelvic heaviness or bleeding . Anaemia, urinary symptoms, and vaginal mass are also reported. Haemorrhage is minimal unlike the puerperal uterine inversion.[7]

Ultrasound is usually the first line of investigation. Sonographic characteristics of "Y" shaped uterine cavity in the longitudinal plane are seen in incomplete uterine inversions. In contrast, the longitudinal view in complete inversion shows a "U" shaped configuration, with the limbs of the "U" representing the complete inverted endometrial lining extending both anteriorly and posteriorly.[8]

Magnetic Resonance Imaging is found to be sensitive in the diagnosis of NPUI. Distinct observations identified are U-shaped uterine cavity, a thickened and inverted uterine fundus on a sagittal section, and a "bull's eye" configuration on the horizontal section.[8]

The morbidity and mortality associated with uterine inversion correlate with the degree of haemorrhage, the rapidity of diagnosis, and the effectiveness of treatment.[9] Reposition procedures, according to the reproductive desire of the patient, or hysterectomy could be considered for surgical treatment.[3] Guerrouj I et al. presented a case of 30 years young female with vaginal bleeding and mass protrusion from vagina, which was diagnosed with uterine inversion due to leiomyoma.[7] Since the female wished for fertility, myomectomy was done and the uterus was reposited back as was done in our case. There are reports of successful pregnancies following the surgical correction of puerperal uterine inversion too.[8]

Irani et al. reported a case of 19 years young female where the uterus was repositioned with the Haultain procedure, yet the woman remained subfertile for two years after the operation similar to our case where uterus was reposited back.[10]

Conclusion

Non puerperal uterine inversion is a rare condition, especially in a young girl, and our case is quite unique in that we did not have any identifiable aetiology. In this age group, the treatment is conservative, with the inverted portion merely repositioned in a proper setup. This unusual case report highlights the relevance of magnetic resonance imaging in identifying non puerperal uterine inversion and provides vital insights into a rare clinical presentation with an enigmatic origin.

Conflict of Interest: None

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