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Chronic Non - Peurperal Uterine Inversion:Recommendations for Diagnosis and Management

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Abstract - Inversion of the uterus is a rare clinical condition. Further, chronic non-puerperal uterine inversion is a still rare clinical entity with very few clinicians encountering it.

Intra-uterine tumours; especially large fundal submucosal leiomyomas are the usual precipitating factors. Due to its extremely rare occurrence it may pose a diagnostic as well as surgical challenge for the gynaecologist. Correct diagnosis based on clinical findings & diagnostic modalities like Ultrasonography (USG) and Magnetic Resonance Imaging (MRI) careful preoperative planning & appropriate surgical procedure are imperative for a successful outcome.

We propose certain recommendations for diagnosis and management of chronic non puerperal uterine inversion associated with a large prolapsed fundal submucosal fibroid accurate diagnosis commencing with strong clinical suspicion & confirmation with advanced diagnostic modalities is the cornerstone of management. HYSTERECTOMY is difficult with the grossly distorted anatomy.

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I. Introduction

Uterine inversion refers to descent of the uterine fundus to or through the cervix, so that the uterus is literally turned inside out.

Uterine inversion is a rare condition that occurs typically as a complication of parturition and is usually associated with poor obstetric practises [1].

Most uterine inversions are acute and puerperal (85.8%). Non-puerperal (chronic or gynaecological) inversions are described in very few patients. They represent about one sixth of all inversion cases (16.35 %) [2].In fact, it is so rare that most gynaecologists wont see one in their life time.

Chronic non-puerperal uterine inversion is often associated with uterine pathology Uterine leiomyomas tend to be the most common inciting factor with leiomyosarcoma, rhabdomyosarcoma, endometrial polyps, endometrial carcinoma and uterovaginal prola- pse being the other possible preceeding factors[3].

Uterine leiomyomas were found to cause inversion in 78.8% to 85% of the cases [4].

We were fortunate to diagnose clinically and manage a woman presenting with gynaecological uterine inversion. Laparotomy presented unique surgical challenges and required some detailed pre-operative planning and advanced intraoperative surgical skills.

II. Case Report

Mrs XYZ, 45, P6L6 presented with crampy lower abdomen pain, feeling of lump in lower abdomen, foul smelling vaginal discharge and severe menorrhagia since one month. She had six term deliveries. She had no bowel or bladder complaints or anorexia.

Patient was tachycardic and severely pale. A 12 weeks size bulge was felt in the suprapubic region. Notably uterine fundus could not be well defined. Per-speculum, a large foul smelling, fleshy ulcerated mass protruding in the vagina and completely filling it was seen. She was actively bleeding.

On bimanual examination large firm fleshy mass about 8cm x 10cm of uterine origin was felt. Remarkably no cervical rim was felt around the mass.

Based on these two features, we strongly suspected a long-standing uterine inversion.

USG showed multiple uterine fibroids and little else.

MRI was then performed. It revealed a large submucous fundal uterine fibroid with clear cut inversion of uterus. (Figure 1)

Pre-operative blood transfusions restored her haemoglobin level. At laparotomy, uterus was completely inverted with both adnexal structures disappearing and incarcerated within the inverted fundal cup (Figure 2). Pelvic anatomy was distorted beyond

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recognition. Obviously a simple abdominal hysterectomy was out of the question. Attempt was made to reposit the uterus abdominally by grasping both round ligaments using Haultain's method. Due to tight cervicovaginal ring around inverted fundus, uterus did not budge. Since the cervical ring through which the fibroid had dragged the fundus down was tight and deeply embedded in the pelvis any attempts to reach and cut it were unsuccessful.

We were now staring at a herculean task of identifying, mobilising, freeing and extricating the uterus without causing damage to ureters which were obviously grossly enlarged and distorted. We decided to proceed in a systematic manner.

Bilateral round ligaments were clamped cut and ligated close to the pelvic wall. After visualising and palpating the enlarged ureters in lower fold of infundibulopelvic ligaments, the ligaments were clamped, cut and ligated. Uterovesical fold of peritoneum was opened and bladder and ureters were pushed away.

The defining step of surgery was doing bilateral internal iliac artery ligation at this juncture, well before proceding any further.

Accessible portions of broad ligament with uterine vessels were clamped, cut and ligated. Anterior vaginal wall, stretched over inverted fundus and fibroid was cut. Fibroid and fundus exteriorised through this incision. Posterior vagina with uterosacrals clamped cut and ligated and the uterus with fibroid and incarcerated adnexa were removed and vaginal vault was closed (Figure 3).

Essentially the hysterectomy was performed upside down.At all times the ureters were followed closely as they are in danger of being damaged all throughout the procedure.When the fundus inverts it drags the infundibulopelvic and retroperitoneum along with it dragging and entrapping the ureters within. Early ligation of internal iliacs ensures a bloodless field through the rest of the surgery. Though the surgery was time consuming patient recovered uneventfully.

III. Discussion

Inversion of the uterus is an unusual entity with not many cases having been reported. It may be classified as puerperal or obstetric and non-puerperal or gynaecologic inversion [5].

Non-puerperal inversions are usually caused by intrauterine tumours like leiomyomas.

Mwinyoglee et al. reported that 97.4 % of uterine inversions are associated with tumours, out of which 20% were malignant [6]. Hence histopathology of the tumor is imperative.

Uterine inversion can be classified into four stages as

Stage1: the inverted uterus remains in the uterine cavity,

Stage2: complete inversion of the fundus through the cervix,

Stage 3: the inverted fundus protrudes through vulva and

Stage4: inversion of the uterus and vaginal wall through the vulva [7] .

Inversion can also be classified as acute and chronic. Acute uterine inversion causes severe pain and haemorrhage where as chronic inversion is insidious and characterized by pelvic discomfort, vaginal discharge, irregular vaginal bleeding and anemia.

The diagnosis is easier with stage 3 and 4 disease where a protruding mass is seen on per speculum examination without definite margins of the cervix and absence of uterine body on bimanual or rectal examination.

In other cases, the diagnosis can be difficult and the use of ultrasound or computed tomography is necessary. MRI and CT scan have been shown to be useful diagnostic tools [7].

Lewin et al reported that in T2-weighted MRI scans, a Ushaped uterine cavity and a thickened and inverted uterine fundus on a sagittal image and a "bulls-eye" configuration on an axial image are signs indicative of uterine inversion [8].

In acute inversion the uterus can generally be reposited back by vaginal manipulation like Johnson's procedure or O'Sullivan Saline hydrostatic pressure method [9]. If these attempts fail then laparotomy is imperative.

In chronic inversion surgical management is mandatory. Depending on the reproductive desire and associated conditions, surgical reposition or hysterectomy could be considered.

The operative procedures for the treatment of chronic inversion are Huntington's [10] and Haultain's [11] abdominal operation and the two vaginal surgeries: Spinelli's and Kustner's techniques [12].

Repositioning of the uterus may not be possible in all cases and hysterectomy may be the only option. Hysterectomy can be performed abdominally or vaginally. In case of large leiomyomas performing myomectomy prior to hysterectomy may be helpful.

IV. Conclusions

Chronic uterine inversion is an extremely rare condition that is difficult to manage even for the experienced gynaecologists. Most of the gynaecologists wont see such a case in their lifetime. Uterine inversion has a good prognosis when managed in a timely and correct manner.

Clinical findings should never be disregarded. Ultrasonography may satisfy our diagnostic needs. If not then advanced imaging techniques like MRI are recommended to seal the pre operative diagnosis.

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The treatment for chronic uterine inversion is always surgical and that includes both abdominal and vaginal approaches. However conservative surgery may not be feasible in all cases and hysterectomy remains the only option. Adequate blood must always be kept at hand. Surgery for this procedure is never easy and should be performed by a well trained senior surgeon after careful preoperative planning and review of literature, often with urologist on standby.

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Legends to Figures

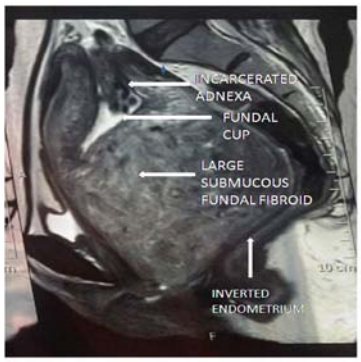


Figure 1 : MRI showing large submucous fundal fibroid causing inversion of the uterus

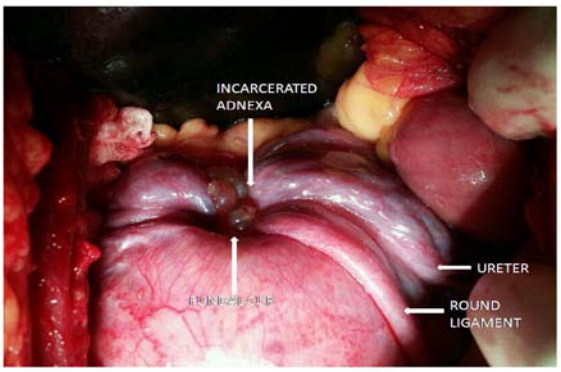


Figure 2 : In-situ findings during laparotomy showing inverted fundal cup caused by the prolapsed submucosal fundal fibroid with consequent incarceration of the adnexal structures within it. Also the anatomy is grossly distorted.

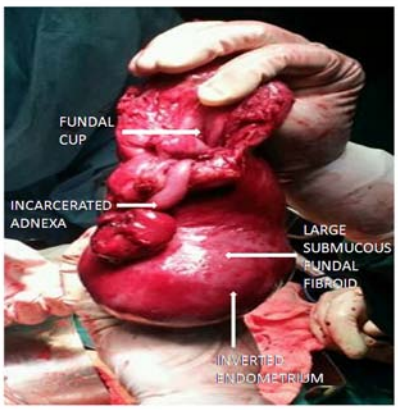


Figure 3 : Hysterectomy specimen showing a large prolapsed submucous fundal fibroid with inverted fundal cup and adnexal structures incarcerated within it.The endometrial lining is turned inside out due to the inversion.

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