Case Report

Laparoscopic Management of Maldescended Ovary Presenting with Recurrent Acute Abdomen

Eghoihunu Ireo, Muhammad Haruna, Preeti Gandhi

Department of Gynaecology, Scunthorpe General Hospital, Northern Lincolnshire and Goole Hospitals NHS Foundation Trust, England, UK

Abstract

Ovarian maldescent is an extremely rare gynecological phenomenon, usually associated with Müllerian abnormalities. We report a 27-year-old woman, presenting with acute, right-sided abdominal pain. She has a history of subfertility and repeated admissions with chronic pelvic pain. Previous hysterosalpingogram and laparoscopy demonstrated unicornuate uterus with absent right fallopian tube and ovary. A right-sided, ectopic ovary was identified on later imaging and suspected as the cause of her symptoms. She underwent laparoscopic excision of the maldescended ovary with remnant fimbrial end and gubernaculum. She was discharged the following day as she was pain-free and remains so 11 months later. This case report prompts a gynecologist to consider diagnosis of maldescended ovary in the women with uterine abnormalities and repeated episodes of abdominal pain. This is the first case report to the best of our knowledge where surgical management of ovarian maldescent was performed via minimal access approach, thus avoiding laparotomy in this acute setting.

Keywords: Ectopic ovary, ovarian maldescent, undescended ovary, unicornuate uterus

INTRODUCTION

Ovarian maldescent is a rare condition where ovaries may be found in an abnormal position along its migration pathway from lumbar region to ovarian fossa. It is characterized by the attachment of the upper ovarian pole to an area above the level of the common iliac vessels^[1] or below the ovarian fossae. Ovarian maldescent may be unilateral or bilateral and can be associated with abnormalities of the Müllerian ducts such as unicornuate or bicornuate uterus.^[1] Although maldescended or ectopic ovary is a very rare condition, it should be considered in women with infertility and abdominal or pelvic pain who has an absent ovary on the routine pelvic ultrasound scan This could be missed or misinterpreted by the radiologists/gynecologists because of the abnormal location and lack of awareness as illustrated by this case. We present a case of right-sided ovarian maldescent with a unicornuate uterus in a patient presenting with an acute abdomen, who was under investigation for secondary infertility.

The purpose of this case report is to raise the awareness among gynecologists of this rare entity of ovarian maldescent for their consideration in women who have a unicornuate uterus,

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especially those under investigation for subfertility or chronic abdominal pain. Ectopic ovary due to the ovarian maldescent could contribute to recurrent abdominal pain.

CASE REPORT

A 27-year-old woman admitted to the Emergency Department with right-sided lower abdominal pain that migrated from the umbilical region. She reported sharp, constant pain, exacerbated by movement, worsening over a few days. She has had previous episodes of the similar pain with no cause for symptoms found. Pregnancy test was negative and vital observations were normal.

Her history included gastroesophageal reflux disease, irritable bowel syndrome, polycystic ovaries, chronic pelvic pain, and

Address for correspondence: Miss. Preeti Gandhi, Consultant Gynaecologist, Scunthorpe General Hospital, Northern Lincolnshire and Goole Hospitals NHS Foundation Trust, Cliff Gardens, Scunthorpe, DN15 7BH, UK. E-mail: preetigandhi@nhs.net

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secondary subfertility. She has one 4-year-old child, which was with spontaneous conception. Subsequently, difficulty in conceiving led to subfertility workup in the past, which involved baseline hormonal analysis, pelvic ultrasound scan, and hysterosalpingogram. On day 2, follicle stimulating hormone and luteinizing hormone levels were 4.3 IU/L and 12.1 IU/L, respectively. Thyroid-stimulating hormone level was 1.7 mU/L, on day 21, progesterone was one confirming ovulation, and prolactin levels were 432 mIU/L. Pelvic ultrasound scan reported that uterus and left ovary were normal with absent right ovary. Hysterosalpingogram showed unicornuate uterus with patent salpinx on the left side [Figure 1]. Magnetic resonance imaging (MRI) of the pelvis was arranged which showed a normal renal tract bilaterally and a possibility of a supernumerary ovary on the right side. She also had ultrasound kidney, ureter, and bladder (KUB) and computed tomography (CT) KUB in the past to exclude renal cause of her pain, which had confirmed normal renal tract bilaterally. This finding led to diagnostic laparoscopy which confirmed unicornuate uterus with absent



Figure 1: Axial computed tomographic images, coronal computed tomographic images, and hysterosalpingogram

right fallopian tube and ovary. Supernumerary ovary was not found. The patient was commenced on clomiphene therapy as was desperate to conceive. On day 21, progesterone was arranged to monitor ovulation as per our unit protocol.

Examination during this admission elicited right abdominal tenderness with no guarding or rigidity. Baseline investigations included full blood count, C-reactive protein (CRP), and urinalysis. White cell count was $6.8 \times 109/L$, CRP was 1.4 mg/L, and urinalysis was negative. Ultrasound of the abdomen and pelvis was arranged, which showed no evidence of appendicitis, and a normal left ovary but right ovary was not visualized. This was consistent with ultrasound and laparoscopic findings in the past. The surgical review was sought to rule out appendicitis or other surgical causes. The surgical team reviewed the patient and requested CT scan of the abdomen and pelvis, which, to our surprise, reported bilateral ovaries present [Figure 1] with no obvious surgical pathology.

Repeated admissions for persisting pain and the inconsistency in radiology reports, regarding the status of her right ovary, instigated multidisciplinary team (MDT) discussion, where all images, reports, and case notes were reviewed. The MDT reviewed the images and noted that the right ovary was indeed present but in the right paracolic gutter behind and underneath the ascending colon. The MDT felt that this maldescended or ectopic ovary could be the cause of her chronic right-sided pelvic pain and advised removal if the pain persisted. This was discussed with the patient, who wished to have it removed.

Four-port laparoscopy was performed. The unicornuate uterus deviated to her left side with normal left tube and ovary visualized [Figure 2]. We opened the peritoneum over the sacral promonitory, and dissection continued over right common iliac vessels. Right ureter was identified. Cecum and ascending colon were mobilized and right ectopic ovary was found lying anterior to the psoas major muscle behind the ascending colon superior and lateral to the appendix.

Attached to its distal end was the remnant of the fallopian tube (1–2 cm) with its fimbriae high up in the abdomen adhered to the parietal peritoneum and underlying bowel. A thin cord-like structure continued from this ovary over the iliac vessels to the cornual end of the right side of her uterus. The small "nodular" structure was also seen at the level of the external iliac vascular axis, which was considered to be a Müllerian remnant or a remnant of the lower gonadal cord. Maldescended ectopic ovary with remnant fimbrial end was dissected from the adjacent bowel [Figure 2] and underlying psoas muscle using ultrasonic sheers. The ovarian vessels were coagulated safely using bipolar diathermy, and the entire ectopic ovary with its attached fimbrial end along with entire length of gubernaculum was removed. The operative time was 30 min, and the estimated blood loss was <5 ml.

The patient was pain-free following the surgery and was discharged home the following day. Histology confirmed

Ireo, et al.: Maldescended ovary



Figure 2: Intraoperative laparoscopic photographs conveying (a) Anatomical relations showing Gobernaculum stretched over the iliac vessels with the rudimentary right horn and normal right ovary, (b) Showing right Ureter crossing over right external iliac artery, (c) Showing Maldescended right ovary behind the ascending colon with fimbrial part of the fallopian tube attached distally.

features in keeping with an ectopic ovary. Eleven months later, the patient remains pain-free. She has conceived spontaneously and is 18 weeks gestation currently.

DISCUSSION

Maldescended ovaries and fallopian tubes occur infrequently. Ovarian maldescent has a very low incidence between 0.3% and 2%,^[2] and it may be unilateral or bilateral. Patients may present with symptoms of abdominal pain or infertility or may otherwise be found incidentally in the asymptomatic population. In our case, the patient presented with repeated abdominal pain and subfertility.

Although the association between unicornuate uterus and undescended ovaries is well established, case literature on the occurrence is scarce, suggesting the possibility that many cases go unrecognized. Our case report demonstrates how the diagnosis could be missed or misinterpreted on pelvic ultrasound scan, CT scan, MRI, and even laparoscopy.

This clearly emphasizes the fact "the eyes do not see what the mind does not know;" hence, we have taken this opportunity to describe our experience through this case report of reaching up to the diagnosis of maldescended ovary and to discuss its management.

The ovaries start to develop behind the peritoneal space near the kidneys, medial to the urogenital fold. Each ovary should descend to the ovarian fossae in the pelvis via the gubernaculum, which is a mesenteric fold, by chemotactic mechanisms between 6 and 9 weeks depending on normal development of the Müllerian system.^[2] By week 20 gestation, the ovaries ought to be in the iliac fossae and located at the pelvic inlet at term. The ovaries should finally be at their normal place by the postpartum period.^[2]

The descent of the ovary is guided by the gubernaculum. The gubernaculum attaches to the uterus, which forms the utero-ovarian ligament and the round ligament of the uterus. Gonadal development begins in the 5th gestational week, from the gonadal process, overlying the mesonephric process.

The incidence of ovarian maldescent is increased in patients with Müllerian duct anomalies.^[3] The association between ovarian maldescent and uterine anomalies such as unicornuate or bicornuate uterus is therefore high.^[4] Unicornuate uterus is more common and reported in 40% of cases of maldescended ovaries.^[1] In unilateral undescended ovary, the ipsilateral tube is usually distant from uterus and only distal fimbria exists,^[2] as observed in our case [Figure 2].

Maldescended ovaries may be located at various points along the ovarian migration path. In our case, it was seen behind the ascending colon; they have been reported in inguinal hernia^[5] above the pelvic brim^[6] and subhepatic region,^[7] which suggests ovarian maldescent follows the course of the gubernaculum in women. This rare congenital anomaly of the female genital tract may also be accompanied by urinary tract anomalies; therefore, it is advised to review the urological system in the radiological scans and perform ureterolysis during laparoscopic excision, as we did in our case [Figure 2].

Literature suggests that clomiphene is a trigger for abdominal pain and may also enhance MRI imaging,^[1] our patient was also on clomiphene. Curiously, although patients with ovarian maldescent may present with infertility, there is no clear association of ovarian maldescent with infertility.

Treatment of ovarian maldescent has been suggested to be conservative.^[2] Continuous treatment with oral contraceptives has been advised for patients with pain;^[2] however, our patient wanted to conceive as such the pill was not the correct measure for her. Some authors advocate denervation of ectopic ovary for pain management; however, due to the difficulty of the technique and lack of literature, it is not a common practice.^[2]

Retroperitoneal position of the ectopic ovary may predispose to neoplastic changes in analogy with the undescended testis.^[8-10] However, there is no documented increased risk of malignancy associated with ovarian maldescent. This was discussed with our patient along with implications and risks associated with oophorectomy including decline in fertility. It was her informed choice to opt for removal of ectopic or maldescended ovary.

We feel laparoscopic approach in such case offers excellent magnified vision of the surgical field, enabling meticulous dissection and hemostasis, facilitating ureterolysis, and visualizing great vessels (iliac vessels), which lie in proximity to the maldescended ovaries. Minimal access is the way forward and could also be considered for conservative surgery in such patients, where ovary is transposed from its abnormal location to somewhere in the pelvis to preserve ovarian function.

CONCLUSION

Ovarian maldescent is a rare condition that may occur along the course of the gubernaculum from the liver to the labia majora; it is often associated with Müllerian abnormalities. Maldescended ovaries may be diagnosed in those with abdominal pain, subfertility, or incidentally in radiology.

Our case report aims to raise the awareness to gynecologists about this rare entity. Ovarian maldescent may perhaps be the cause of acute abdomen in women with subfertility and uterine abnormalities, particularly if an ovary is found to be absent from its normal location.

Laparoscopic management of the maldescended ovary led to a favorable, pain-free outcome for our patient who had chronic abdominal pain. In this era of advancing minimal access techniques, it is feasible to manage these patients laparoscopically and attain exceptional views and magnifications while minimizing bleeding, scarring, infection rate, and postoperative hospital stay.

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form the patient(s) has/have given his/her/their consent for his/her/their images and other clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

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Conflicts of interest

There are no conflicts of interest.

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77