ORIGINAL RESEARCH PAPER

Radio-Diagnosis

CASE REPORT OF PREGNANCY IN RUDIMENTARY HORN

KEY WORDS:

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ABSTRACT

Unicornuate uterus is a rare uterine malformation (accounting for 2.4-13.7 % cases of all uterine malformations). We discuss a case of pregnancy in rudimentary horn of unicornuate uterus. Ultrasound and MRI imaging of the patient was done after which she underwent laparotomy and the final diagnosis of non-communicating rudimentary horn pregnancy was made intraoperatively. This case highlights the importance of early diagnosis of uterine anomalies and role of imaging modalities and operative outcome of pregnancy in those patients.

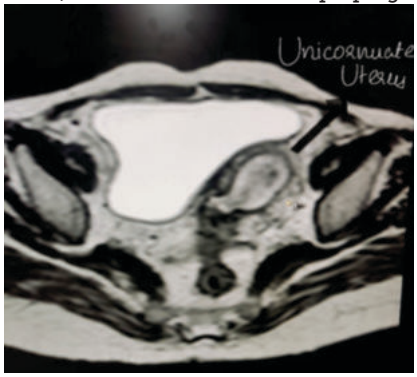
CASE REPORT

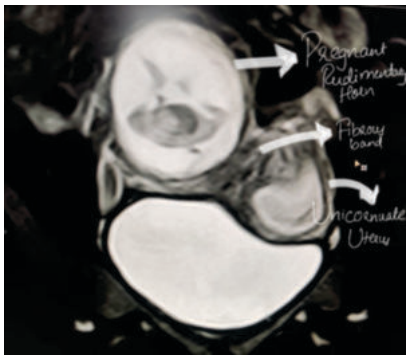
A 24 year old female with 14 weeks of amenorrhoea presented to civil hospital, Ahmedabad for routine check up.

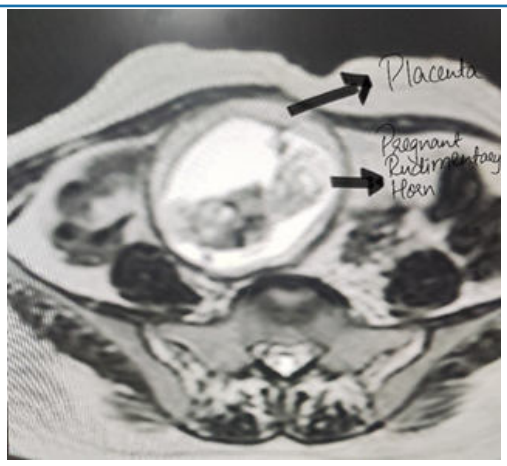
She was gravida 2, para 1 and had undergone one caesarean delivery in the past.The previous pregnancy was a term pregnancy with breech presentation for which LSCS was done. The previous pregnancy was otherwise uncomplicated with successful fetal outcome. LSCS was done at a private hospital and operative notes were not available. There was no other significant medical or surgical history.

Patient was referred for ultrasound. A transabdominal ultrasound was performed during which a single intrauterine fetus with cardiac activity was present. A uterus like structure was identified on the left side of fetus. Differentials considered were : Intrauterine pregnancy with a lesion in left adnexa or right adnexal ectopic pregnancy.

MRI pelvis was performed in which the uterus with clear endometrium was seen separately. The pregnancy was seen in right adnexa, which was labelled as ectopic pregnancy.

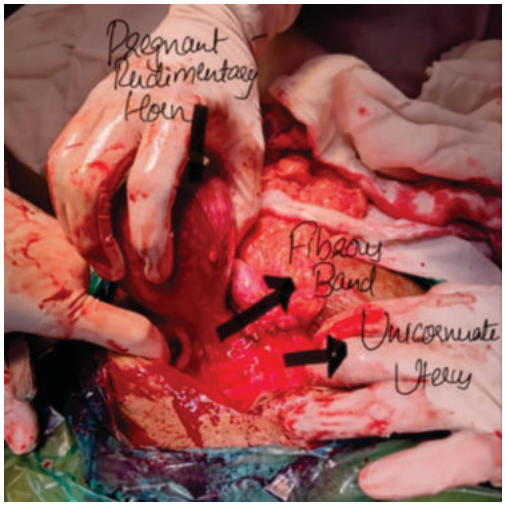


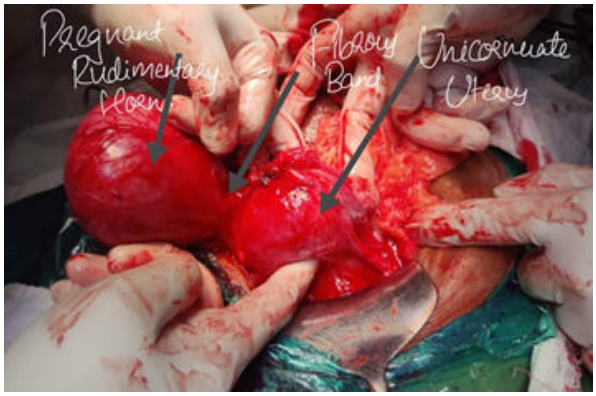


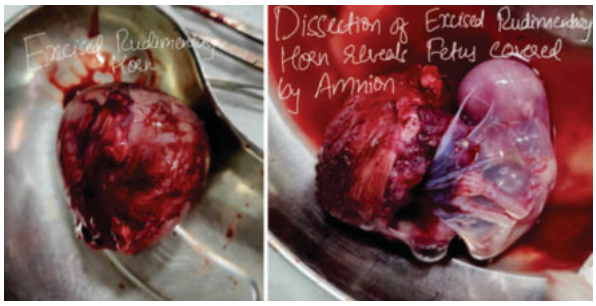


The patient underwent laparotomy during which diagnosis of Unicornuate uterus with non-communicating right rudimentary horn was made.

Findings include – A normal uterus with a normal fallopian tube and normal ovary on left side and pregnancy in horn on right side with a fallopian tube and ovary attached to it. Horn on right side was connected to the uterus just above the cervix via a fibrous band. The diagnosis of pregnant non communicating right rudimentary horn was made. Excision of horn, along with right fallopian tube was done. Excised horn was dissected which showed a fetus surrounded by amniotic fluid and anterior placental tissue.







Postoperative period was unenventful and patient was discharged on postoperative day 5. Histopathology revealed decidualisation of endometrium with changes of placenta accreta in myometrium, fallopian tube showing normal histology.

Review of Literature

Fusion of the mullerian ducts normally occurs between the 6th and 11th weeks of gestation to form the uterus, fallopian tubes, cervix, and proximal two-thirds of the vagina. Any disruption of müllerian duct development during embryogenesis can result in a broad and complex spectrum of congenital abnormalities termed *Mullerian duct anomalies* (MDAs).

The ovaries and distal third of the vagina originate from the primitive yolk sac and sinovaginal bud, respectively. Diagnosis of Mullerian duct anomalies is clinically important because of the high associated risk of infertility, endometriosis, miscarriage and complicated pregnancy. Incidence of Mullerian duct anomalies in the general population is estimated to be 4.3%.

American Society of Reproductive(ASR) Medicine classification of uterine Mullerian anomalies is a seven-class system that can be used to describe a number of embryonic Mullerian duct anomalies:

class I: Uterine agenesis/uterine hypoplasia
a: vaginal (uterus normal/variety of abnormal forms)
b: cervical
c: fundal
d: tubal
e: combined

class II: Unicornuate uterus/unicornuate unicollis
a: communicating contralateral rudimentary horn contains endometrium
b: non-communicating contralateral rudimentary horn contains endometrium
c: contralateral horn has no endometrial cavity
d: no horn

class III: Uterus didelphys

class IV: Bicornuate uterus: 2nd most common type
a: complete division, all the way down to the external os (bicornuate bicollis)
b: partial division, not extending to the internal os (bicornuate unicollis)

class V: Sepatate uterus: commonest anomaly,
a: complete division, all the way down to the internal or external os
b: incomplete division, involving the endometrial cavity but not the cervix

class VI: Arcuate uterus

class VII: in utero diethylstilbestrol (DES) exposure (T shaped uterus)

Unicornuate uterus with rudimentary horn is a type of Mullerian duct malformation with incidence rate of 0.06%. This malformation results from the defective fusion of the duct with the contra-lateral side. The cavity of this malformed duct is usually found to be noncommunicating with the main uterine cavity. A fibrous or fibro-muscular band connects the two but there is no communication in 80-90% of the cases. The rudimentary horn may have a functional endometrial cavity or it may be a small solid lump of uterine muscle with no functional endometrium.

Non-communicating contralateral rudimentary horn in a unicornuate uterus is a Type IIb uterine anomaly (as per ASRM classification).

Patients with such condition can suffer gynaecologic and obstetric complications such as hematometra, hematosaplinx, endometriosis, recurrent abortions, rupture of rudimentary horn.

The incidence of pregnancy in rudimentary horns is estimated at 1 per 100,000 to 140,000 pregnancies. Pregnancy in a noncommunicating rudimentary horn occurs through the transperitoneal migration of the spermatozoon or the transperitoneal migration of the fertilized ovum. It is extremely uncommon for such cases to result in a viable baby. These cases usually result in the rupture of the horn in the second or third trimester, typically between the 10^{th} and 20^{th} week of gestation. Only 10% of cases such as these reach term, and the fetal salvage rate is only 2%.

The rupture occurs because of the underdevelopment of the myometrium and a dysfunctional endometrium. A rudimentary horn pregnancy can be further complicated by placenta percreta due to the poorly developed musculature and the small size of the horn; the reported incidence is 11.9%.

The key for diagnosis prior to the rupture is a high index of clinical suspicion. A history of severe dysmenorrhoea may be a clue for diagnosis. However, the rudimentary horn may be underdeveloped and its endometrium nonfunctional, so dysmenorrhoea may be absent. A careful pelvic examination in the first trimester showing a deviated uterus with a palpable adnexal mass should provoke suspicion of a Müllerian anomaly. It can be confirmed by an ultrasound or MRI.

Following criteria for diagnosing a pregnancy in the rudimentary horn: (1) a pseudo pattern of asymmetrical bicornuate uterus; (2) absent visual continuity between the cervical canal and the lumen of the pregnant horn, and (3) the presence of myometrial tissue surrounding the gestational sac.

It is important to emphasize that the risk of rupture of a pregnant rudimentary uterine horn and placenta accreta in the second trimester is very high and, therefore, if an early diagnosis is made, excision of the rudimentary horn and

ipsilateral tube with or without previous medical treatment (i.e., methotrexate, feticide via potassium chloride or gonadotropin-releasing hormone (GnRH) analogues) is recommended.When a uterine rupture occurs, urgent intervention should take place. If the patient's condition allows it, excision of the rudimentary horn with ipsilateral salpingectomy should be performed immediately.

A study published by Qamariya ambusaidi and Chitra Jha describes a case of 24 year old woman with fetal demise at 23 weeks of gestation with multiple attempts of failed induction of labour which raised the suspicion of an abnormally located pregnancy.Patient underwent MRI which showed normal myometrial tissue around the fetus with a separate uterine horn. Laparotomy with right rudimentary horn excision was performed.

Study published by Deepa V. Kanagal et al. describes a case of 25year old woman with rupture rudimentary horn pregnancy at 25 weeks which was initially misdiagnosed as ruptured uterus with fetal demise and hemoperitoneum on ultrasound. Laparotomy revealed rupture of right rudimentary horn pregnancy with massive hemoperitoneum. Timely laparotomy, excision of the horn, and blood transfusion saved the patient.

Study published by Yu-JuLai et al. describes a case of 22year old woman with suspected ectopic pregnancy of 12 weeks on ultrasound. Magnetic resonance imaging (MRI) revealed that the sac was surrounded by a wall with the same signal intensity as that of myometrium. An ectopic pregnancy was assumed and laparotomy was performed. The procedure revealed a rudimentary horn pregnancy and resection of the rudimentary horn was performed.

CONCLUSION

Uterine anomlies although relatively rare, it is important to have a high degree of clinical suspicion for early diagnosis and management. Early Imaging plays an important role in reducing complications related to progression of such a pregnancy to 2nd and 3rd trimester. When a rudimentary horn pregnancy is diagnosed, the excision of the horn with ipsilateral salpingectomy is the recommended surgical treatment for the best prognosis.

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