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Ruptured Ectopic Pregnancy after Tubal Ligation: Mechanism of Recanalization

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Case Report

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Abstract: Ectopic pregnancy is an entity which when reports to emergency department requires prompt diagnosis and treatment. Index of suspicion is high in fertile women but it poses challenge and demands knowledge to manage if the woman has history of sterilization where suspicion of pregnancy is far remote. We present one such experience of ruptured ectopic pregnancy in a woman who had history of bilateral tubal sterilization 6 years back.

Keywords: Ectopic pregnancy, Recanalization, Rupture, Tubal sterilization.

INTRODUCTION

The term "ectopic" is derived from the Greek word "ektopos" meaning out of place. Ectopic pregnancy results from abnormal reproductive physiology that allows the conceptus to implant and mature outside the endometrial cavity. It ultimately ends in the death of the fetus. Without timely diagnosis and treatment, ectopic pregnancy can become a life threatening situation [1]. These aspects of the condition demand an extra caution from the treating doctors and put more challenge in its management especially if the patient is previously rendered sterilized and still presents with the pregnancy. We report one such case of ruptured ectopic pregnancy in a woman with history of bilateral tubal ligation 6 years back.

CASE REPORT

A 33 year old female patient, mother of 5, presented with complaints of pain abdomen, more on lower abdomen since one day.

She had history of multiple episodes of non-bilious vomiting. Her LMP was 35 days back. On examination she looked pale with tachycardia (pulse rate of 124 beats/min) and hypotension (blood pressure of 100/70 mmhg). Lower Abdomen was distended with tenderness all over the abdomen. Urinary pregnancy test was advised which was positive.

Ultrasonography showed moderate free fluid with heterogeneous mass in pelvis suggestive of clotted blood / omentum. Diagnosis of ruptured ectopic pregnancy was made and an urgent laparotomy was done. Hemoperitoneum and blood clots encountered were evacuated. Ruptured ectopic pregnancy was discovered in the left ovary with active oozing. Bilateral salpingectomy was done. Patient recover well in postoperative period and was discharged satisfactorily.

DISCUSSION

Lowson Tait, The Father of gynaecologic surgery reported the first successful operation for ectopic pregnancy in 1883 [2]. An ectopic pregnancy is one in which the fertilized ovum is implemented in a site other than the uterine cavity [3]. Incidence of ectopic pregnancy is 1:160 deliveries [4]. Ectopic pregnancy is reported as one of the commonest cause of first trimester maternal death in developed countries and only follows induced abortion in sub-saharan Africa [5, 6].

Various risk factors are mentioned for ectopic pregnancy. They may be mechanical and functional factors. Mechanical factors like salpingitis, prior tubal surgery, prior ectopic pregnancy prevent or retard the passage of the fertilized ovum into the uterine cavity. Functional factors like serum levels of oestrogen and progesterone, delay the passage of the fertilized ovum

into the uterine cavity by altering the tubal mobility [5, 6]. The presentation of ectopic pregnancy is variable. It may present as asymptomatic/ acute abdomen/ hypovolemic shock [7].

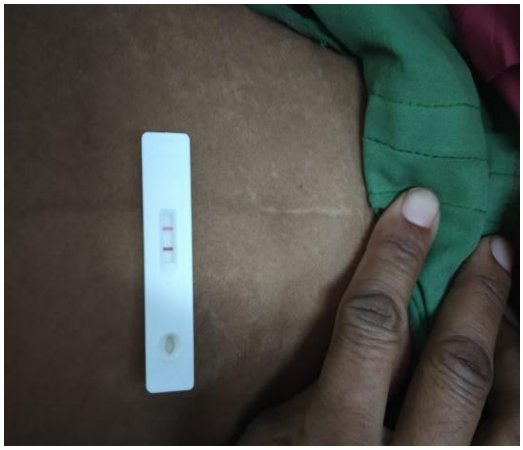

Fig-1: Previous sterilization scar and strong positive urinary pregnancy test

Fig-2: Evacuated blood clots

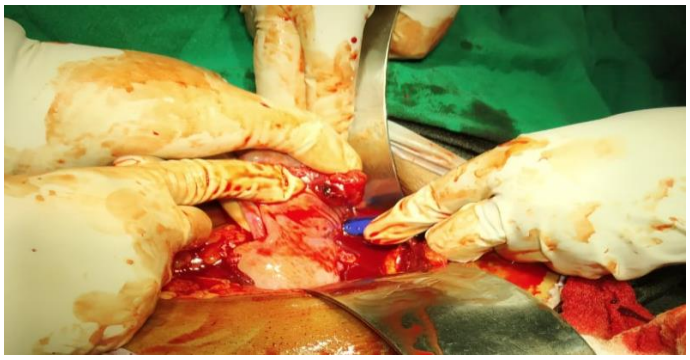

Fig-3: Ruptured ectopic in left ovary with active oozing

Indeed the difficult aspect of the condition is in establishing a diagnosis and it becomes more challenging if the patient had previous history of bilateral tubal ligation due to which the treating doctor give least concern that the patient may be still pregnant. Various modalities like high sensitive pregnancy testing, transvaginal ultrasonography and diagnostic laparoscopy has major role in preoperative diagnosis of this condition and hence decide the management plan [5].

Various procedures have been devised to accomplish sterilization with varying failure rates. The incidence of failure of voluntary sterilization is relatively small, however, if pregnancy does occur, 15 to 20% of such pregnancies are likely to be ectopic [8-

15]. Post sterilization ectopic pregnancy account for over 10% of all ectopic gestation [9, 11, 15].

When a patient with previous tubal ligation develops the sign and symptoms of pregnancy, diagnosis of extra uterine pregnancy has to be considered as the ratio of ectopic to intrauterine pregnancy is higher among pregnancies occurring after sterilisation failure than in the general population [9]. Chi *et al*., [16] reported that 15 out of 194 confirmed pregnancies conceived after sterilization procedure were ectopic. Uncorrected incidence rate of 0.64 per 10,000 sterilization procedures and 7.7 per 100 pregnancies conceived after tubal sterilization were derived. The probable explanation mentioned for these ectopic gestation after tubal ligation is recanalization or formation of a tubo-peritonial fistula; sperm pass through but the fertilized ovum cannot so implantation occurs classically in the distal tubule segment [11, 14].

Flex *et al*., in 1975 [17] on the basis of intraoperative findings and histological sections described the mechanism of recanalization after Pomeroy sterilization method (most widely used method for sterilization). At the level of resection, the epithelial lining of the fallopian tube tends to regenerate, covering the split ends and planes of cleavage of the resected surfaces and forming slit-like spaces and blind pouches lined by tall columnar cells. Scarring and subsequent retraction of both severed ends of the tubes tend to result in approximation; in some cases the resected ends and the epithelial lining bridge the gap between the lumina, re-establishing patency of the tube.

Rock *et al.*, [18] suggested that the development of tubo peritoneal fistula subsequent to sterilization was associated with the development of endometriosis especially when the ligation site was within 4 cm of the coruna. The focal endometriosis might then be considered as a probable site for implantation.

Shah, R. S *et al*., [8] mentioned that ectopic tubal pregnancy after tubal ligation account for 4.5 % of all the ectopic pregnancy in their study. 84.6% of them occurred more than a year after sterilization. In another study the ectopic versus intrauterine pregnancy ratio was1:14.2 at one year after sterilization and was 1:2 at more than 2 years after sterilization [16]. Moreover, Shah, R. S *et al*., [8] also reported that 92.3% of the patients in their study had undergone sterilization in conjugation with pregnancy event such as medical termination of pregnancy or puerperium. The incidence of ectopic pregnancy after sterilization is higher when sterilization is performed during the postpartum period because the oedematous friable and congested fallopian tubes following pregnancy increase the chances of incomplete occlusion of tubal lumen [13, 8].

In ***conclusion*** the entity ectopic pregnancy after tubal sterilization is not uncommon. The differential diagnosis of ectopic pregnancy should be kept in mind when a woman presents with signs of ruptured ectopic pregnancy even if she had history of tubal sterilization. Index of suspicion should be more if two or more years have elapsed since sterilization as chances of recanalization increases with time since sterilization.

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