

CASO MÉDICO FORENSE

Ectopic tubular pregnancy in post tubectomy death

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Rupture;
Death

Abstract

The death after tubal sterilization operation is one of the major concerns of the public. Tubectomy in India is performed for family planning as permanent sterilization. There are various methods of female sterilization, however no method is absolutely reliable; and pregnancy is reported even after hysterectomy with bilateral salpingectomy. In the present case, 25 years female was admitted to the hospital with complaints of pain in abdomen and vomiting since morning with history of tubal sterilization before 5 weeks under National Family Planning Programme. She died after 48 hrs of hospitalisation and body was sent for medicolegal autopsy with history of allegation of negligence in post tubectomy death. Autopsy revealed ruptured ectopic tubal pregnancy of 5-6 weeks with bilateral tubal occlusion by silastic rings. The case is presented with a view to investigate the allegations and to probe the possibility of conception before or after tubal sterilization.

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PALABRAS CLAVE

Embarazo ectópico;
Esterilización;
Ligadura de trompas;
Oclusión tubárica;
Rotura;
Muerte

Embarazo ectópico en una muerte tras ligadura de trompas

Resumen

La muerte como complicación de una esterilización tubárica es un tema de gran preocupación en la India. Dicha intervención se realiza dentro de programas de planificación familiar como un método de esterilización permanente. Hay varios procedimientos de esterilización en la mujer; sin embargo, no hay ninguno totalmente fiable, ya que incluso se ha publicado algún embarazo tras una histerectomía con salpingectomía bilateral. Se

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presenta el caso de una mujer de 25 años con antecedentes de una esterilización tubárica unas 5 semanas antes, que acudió a un hospital con dolor abdominal y vómitos. Falleció tras 48 h de ingreso y se solicitó una autopsia medicolegal al denunciarse una posible negligencia. La autopsia demostró la rotura de un embarazo tubárico de 5-6 semanas con presencia de una oclusión tubárica correcta. Se discute una presunta mala praxis médica y la posibilidad de un embarazo previo o posterior a la intervención quirúrgica.

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Introduction

India is the first country that launched a National Family Planning Programme in 1952 under Ministry of Health and Family Welfare, Government of India. With a view to encourage people to adopt permanent method of Family Planning, Government has been implementing a centrally sponsored scheme since 1981 to compensate the acceptors of sterilisation for the loss of wages for the day on which he/she attended medical facility for undergoing sterilization. Amount being revised from time to time. Apart from providing incentives to the person undergoing sterilization operation under this scheme, the government has also made a provision of compensation in case of failure of sterilization operation namely tubectomy/vasectomy, and also for the death of the concerned person.

World Health Organisation estimated that ectopic pregnancy was the cause of 4.9% of pregnancy-related deaths in the developed world¹. The frequency of ectopic pregnancy has been reported as 16 per 1000 pregnancies². However, the frequency of ectopic pregnancy following tubal sterilization is reported as 7.4% cases³. Qvigstad and Jerve⁴ reported 1.3% ectopic pregnancy after tubal sterilisation. According to the international sources, with tubectomy the risk of failure (becoming pregnant again) is roughly one in 200, the risk of post-operative complication is one in 100 and the risk of death is three in 100,000⁵. Even when tubal occlusion operations are competently performed with all technical precautions, intrauterine pregnancy occurs subsequently in 0.05% cases⁶. Females who undergo tubal sterilization should be counselled about this risk and a diagnosis of ectopic gestation should be considered whenever a patient with a previous history of tubal sterilization complains of pain in abdomen. A case of ruptured tubal pregnancy five weeks after successively performed bilateral tubectomy is presented with a view to investigate the allegations and to probe the possibility of conception before or after tubal occlusion.

Case report

A dead body of 25 years female was brought for medicolegal autopsy. As per the investigating officer, the deceased was married five years ago and had two male children, aged 4 and 2 years and one female child, aged about 6 months, all delivered normally. While the mother was in the period of lactational amenorrhoea, bilateral tubectomy (tubal

occlusion) was done on 20th November under National Family Planning Programme in the sterilization camp at primary health centre of the village, where pregnancy testing was not routinely done prior to the operation. She was absolutely normal for about five weeks (37 days) after the sterilization operation. Thereafter she had abdominal pain and vomiting since morning, for which she was admitted in the rural district hospital on 26th December. On hospitalisation, general condition was moderate and patient was slightly feverish. Pulse was 90/min, regular and blood pressure was 110/80 mmHg. Mild tenderness was present all over abdomen. Liver and spleen were not palpable. Bowel sound was heard in all quadrant of abdomen. Cardiac and respiratory systemic examination was within normal limits. She was diagnosed as colitis and was given injection ampicillin, metrogyl, buscopan, rantac, perinorm and intravenous fluids; and was advised blood and urine investigation. Blood examination revealed haemoglobin: 7 g/dl; blood urea: 37 mg/dl; serum bilirubin: 0.7 mg/dl, with blood group 'AB+ve'. There was no albumin and sugar in urine. On next morning, she had only pain in abdomen with slight tenderness. Patient was sent for sonography examination of abdomen but came back without examination. In the evening her condition deteriorated, so injection dexamethasone, derriphyllin, sodabcarb, amikacin, cefpar were added. She was also given oxygen inhalation. However, the condition did not improved and patient becomes dyspneic, pulse and heart sound becomes feeble, pupils were slightly dilated, blood pressure was not recordable. She was kept on ventilator and was given injection effcorline and adrenaline. But the condition worsened and the patient died after a period of about 48 hrs of admission. Body was sent to mortuary for medicolegal autopsy with history of allegation of negligence in post tubectomy death.

Autopsy findings

On external examination, the body was of average built. Skin, conjunctiva and nail bed were pale. Injection marks were present on both cubital fossa. Whitish mucoid froth was present at nostrils. There was no bleeding per vaginum. Internally, brain was congested. Lungs were congested and edematous. Respiratory tract mucosa was congested and showed scanty mucoid froth. Abdominal cavity contains approximately 2.5 litres of blood and clots. Visceral organs were congested and intact. Stomach was intact and contained approximtely 10 ml of yellow mucoid material

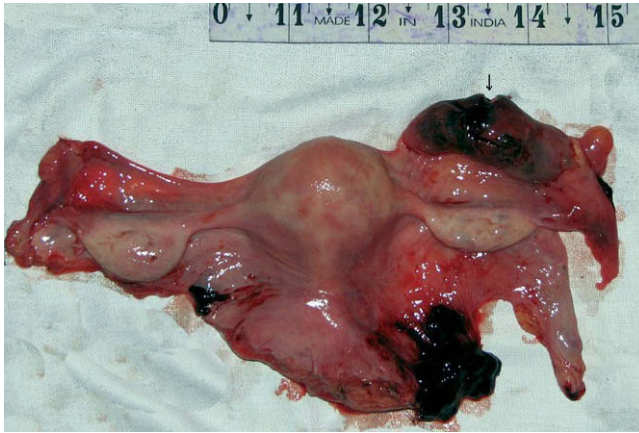


Figure 1 Posterior aspect of uterus and its adnexa showing bilateral tubal occlusion and ruptured tubal pregnancy.

with no peculiar smell and normal mucosa. Intestines were also intact and their mucosa was normal. Uterus was intact and congested. Both ovaries were intact. Left fallopian tube shows tubal occlusion at 2.5 cm proximal to the fimbrial end by silastic rings. Right fallopian tube also shows tubal occlusion by silastic rings at 2 cm proximal to the fimbrial end. The right tube was distended in isthmoampullary region for 4×2×2 cm at 1.5 cm proximal to ligation with rupture in antimesosalphingial border for about 2×0.3 cm with blood clot adherent at the site of rupture (Fig. 1). Both the tubes were completely occluded by the rings. On cut section whitish sac-like structure of size 2×1.5 cm surrounded by blood clots was present. There was no evidence of any tubal recanalization, fistula or any tubal adhesion. On histopathological examination, endometrium is in proliferative phase and ovaries shows corpus luteal. Section from rupture fallopian tube shows infected products of conception. Cervix shows features of chronic cervicitis. Final opinion as to the cause of death is shock and haemorrhage due to rupture of tubal pregnancy; and the gestational age is about 5-6 weeks.

Discussion

Female sterilisation is the mainstay of contraceptive methods in India. Every year over four million female sterilization operations are conducted in the country. Death is a known complication of tubectomy and reports of death in India are as high as 19 per 100,000⁵. Although ectopic pregnancy after tubal sterilization is rare, all women undergoing this procedure should be informed about the risk. Doctors often justify the shoddy treatment of women at sterilization camps by referring to the pressure of targets they have to fulfil or the lack of time. The accountability to the employer (the government) in terms of the various pressures has to be balanced against the ethical responsibility towards the individual patient. Besides ethical principles, the consequences of the poorly conducted operations have legal dimensions as well. Indian courts have admitted cases of tubectomy failure and deaths

and have taken steps to compensate women for medical negligence and fixed accountability of the state for negligence of the doctor in cases of failure as well as tubectomy deaths⁷. Thus, as far as legal liability is concerned the Supreme Court clearly stated that the doctor as well as the state must be held responsible if sterilisation operation fails on account of negligence. The court has also ruled that in case of death after tubectomy, the state is responsible for the acts of its doctors. In the present case, the tubal sterilization operation was done during the period of lactational amenorrhoea, under the National Family Planning Programme in the sterilisation camp, where pregnancy testing was not routinely done prior to the sterilisation. So, as there was post tubectomy death due to rupture of ectopic pregnancy, the government has given compensation.

The death after tubectomy operation is one of the major concerns of the public. Hence proper investigation is necessary. There are various methods of tubectomy, the best is the Pomeroy procedure in which a loop of tube is formed, the base of which is ligated with catgut and then upper part of the loop is excised, with a failure rate of 0.05%. Whatever technique is used for tubectomy, the portion removed from the tubes should always be kept for histological examination. This is to provide evidence that the tissue removed is none other than the fallopian tubes⁸.

To frame a charge of negligence against the treating doctor, there should be lack of reasonable care, skill and knowledge. The question of criminal negligence may arise when the death of the patient may be due to any rash or negligent act which shows gross carelessness, gross negligence or gross ignorance during administration of an anaesthetic, performance of an operation or any other treatment⁹. Complication occur during or after operation are not negligence but complications which are not managed by the treating doctor due to lack of care and skill causing bodily injury or death of the patient put him in professional negligence¹⁰. In the present case there was history of bilateral tubal sterilization before one month, so the possibility of pregnancy was not thought. Patient had only abdominal pain and vomiting, so the provisional diagnosis of colitis was made. Patient was sent for sonography examination but she came back without examination. The treating physician had advised proper investigation and had given proper treatment. There is no gross carelessness or ignorance during hospitalisation of the patient. Mere misdiagnosis of pregnancy in a case of tubal occlusion does not amount to negligence.

Now the question is why the diagnosis of ectopic pregnancy and its rupture was missed? There are various risk factors associated with tubal pregnancy like developmental defects in the tube, distortion of tubes by adjacent tumours or endometriosis, pelvic inflammatory disease due to any cause, prior tubal sterilization, and abortion², however most patients presenting with an ectopic pregnancy have no identifiable risk factor¹¹.

The first step in the diagnosis of ectopic pregnancy is demonstration of pregnancy by means of a rapidly performed and sensitive qualitative urine test for beta subunit of human chorionic gonadotropin (β -hCG). A negative urine pregnancy test result will generally be used to exclude

ectopic pregnancy from further consideration. However, Kalinski et al¹² reported a case of ruptured ectopic pregnancy in a patient with negative urine pregnancy test. Routine ultrasound scans can miss the diagnosis of an ectopic pregnancy in almost 50% of cases¹¹. Improved methods for detecting ectopic pregnancy, including pelvic ultrasound and radioimmunoassay of β -hCG have increased the physician's ability to make an early and specific diagnosis¹³. However, in India, more than 80% of ectopic pregnancies are diagnosed after rupture. But with high-resolution transvaginal sonography, serum β -hCG assay and increased vigilance of the clinician, more and more cases are being diagnosed before rupture¹⁴. In the present case, the patient had only pain in the abdomen and vomiting with history of bilateral tubal ligation. Hence it is not surprising that the diagnosis is missed in such cases.

In tubal pregnancy, as the gestation enlarges, it creates the potential for organ rupture because only the uterine cavity is designed to expand and accommodate the fetal development¹¹. Tubal rupture is mostly seen when the pregnancy is implanted in the isthmus where the lumen is narrow and incapable of much distension. The ovum burrows deeply and ultimately erodes through the tube wall. In the process, one or more large arterioles usually rupture². Risk of rupture from tubal pregnancy is highest, at 5 to 7 percent, within 48 hours after onset of symptoms such as abdominal or pelvic pain, vaginal bleeding, and tenderness or mass of the fallopian tubes or ovaries. Once a woman has untreated symptoms beyond 48 hours, there is about a 2.5 percent risk of rupture for every 24-hour period she goes untreated¹⁵. In the present case, the possibility of pregnancy was not at all considered in bilateral tubal ligation just before five weeks. The pregnancy is implanted in the isthmoampullary region of the tube and ruptured within 36 hours after onset of symptoms.

Lastly the question is whether the possibility of conception was before or after the sterilization operation? Ectopic gestation after tubal sterilization apparently occurs when there is recanalization and formation of a proximal tuboperitoneal fistula, allowing sperm passage and fertilization of the ovum in the peritoneal cavity, on the ovarian surface or within the ductal tubal lumen⁶. If the diameter of the recanalized tube or tuboperitoneal fistula is less than 0.013 cm, interruption to the passage of the ovum will occur and an ectopic pregnancy will result. The spermatozoa can get past the diminished diameter of a recanalized oviduct but the fertilized ovum cannot pass¹⁶. Usually, the fertilized ovum moves through the fallopian tube to reach the uterus for implantation by 6-7 days after fertilization. It is difficult to counter the presence of 1-3 days old conceptus in the outer end of the tube. Unless advised to the contrary, women may practise unprotected coitus within 48 hours prior to entering hospital to be sterilized, feeling it is quite safe to do so. If they do, and if conception occurs, the operation results in imprisonment of the fertilized ovum in the outer end of the tube². Similarly, if the conception occurs after the sterilization operation, then the fertilized ovum gets implanted distal to the site of tubal occlusion. But in that case the gestational age will be equal or less than the period of tubal occlusion. So, if the tubal occlusion is done when the fertilized ovum is in the

middle of the tube, then only it gets implanted proximal to the site of occlusion. In the present case, bilateral tubal occlusion was done before 5 weeks (39 days) by silastic rings. There was no tubal recanalization or fistula and the gestational age was about 5-6 weeks. So the possibility of conception just prior to the sterilization operation is more as the fertilized ovum is implanted proximal to the site of occlusion.

Hence, it is suggested that curettage should be done at the time of sterilization operation unless the patient is in the immediate postmenstrual phase in spite of being associated with surgical morbidity due to perforation. However, routine curettage is not recommended at the time of tubal sterilisation operation. Women should also be advised to use barrier methods of contraception after their last menstrual period before sterilization and continue to use it until their next menstrual period. And lastly, the pregnancy test must be performed on all women undergoing sterilization operation, at least in cases of lactational amenorrhoea or in cases where complete menstrual, sexual and contraceptive history is not available.

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