



SLIPPAGE OF LIGATURE AS A RARE CAUSE FOR REACTIONARY POSTOPERATIVE HEMORRHAGE FOLLOWING PUERPERAL STERILIZATION-A CASE REPORT.

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ABSTRACT Female sterilization is the most common permanent method of contraception in India. Reactionary postoperative hemorrhage following this procedure is very rare and it happened in our case due to lack of adherence to basic surgical principles. Depending on high Obstetric Shock Index at admission, our patient was taken up for immediate re-laparotomy with simultaneous resuscitation which prevented maternal mortality. In this paper, we aim to emphasize the importance of strict adherence to basic surgical principles, need for close monitoring of vital parameters in the immediate post operative period, deciding the ideal line of management in a hemodynamically unstable patient depending on the Obstetric Shock Index.

KEYWORDS : Female sterilization, slippage of ligature, Reactionary hemorrhage, Obstetric shock index

INTRODUCTION:-

Female sterilization performed at the time of birth with cesarean delivery or very soon after vaginal birth is called puerperal or postpartum sterilization. Female sterilization remains the most common contraceptive method in India. Between 1992-93 and 2019-21, the share of women (aged 15-49) who had undergone sterilization increased from 26.8 percent to 37.9 percent.(1)

Immediate complication of the procedure in the form of reactionary hemorrhage is very rare; but failure of procedure resulting in pregnancy may occur in 0.04%.

Aims And Objectives:- To bring into light the

1. Slippage of ligature as a rare cause for severe hypovolemic shock following puerperal sterilization done during cesarean section.
2. Key points to prevent slippage of ligature following tubal ligation.
3. Importance of close monitoring of maternal vital parameters in the immediate postoperative period.
4. Role of obstetric shock index assessment which guides the ideal line of management.
5. Concept of golden first hour in resuscitation for optimum maternal outcome.

Case Report:- A 25-year-old P2L2 was referred to government general hospital 11 hours after elective repeat cesarean section and puerperal sterilization; done at term gestation. The indication for referral was the "complaint of shortness of breath" which started one hour after surgery. Antenatal records and intra-operative notes were not provided. At admission, there was marked pallor with tachypnoea, respiratory rate of 44 cycles/minute (SPO2 of 80% with room air), tachycardia to the extent of 160bpm. Blood pressure was 100/60mmHg making her obstetric shock index as 1.6. Her peripheries were cold and clammy, uterus was well retracted with minimal vaginal bleed.

There was only 50ml of high colored urine in the urobag. As she was in grade 3-4 shock, immediate resuscitation was started with crystalloids, colloids and whole blood along with inotrope support. Her hemoglobin was 6gm/dl, serum creatinine was 1.4mg/dl at admission. Ultrasonography of abdomen and pelvis revealed moderate amount of free fluid in the peritoneal cavity with a 6.3*5.3 cm heterogeneously hyperechoic lesion in right adnexa without vascularity.

Based on these findings, she was taken up for emergency re-laparotomy which revealed hemoperitoneum of 2 litres with a fresh clot of 300gm in right adnexa which resulted from slippage of chronic catgut No.1-0 ligature applied in Pomeroy technique of tubal ligation.(Figure 1).

The bleeding tubal stump was secured, and blood volume was replaced. Renal function recovered spontaneously, which helped in discharge of patient in good condition.

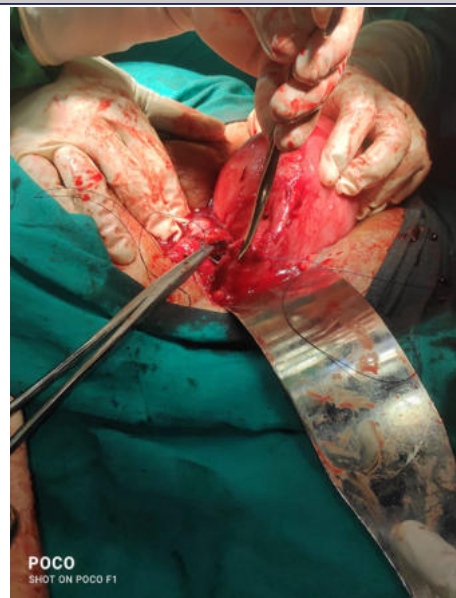


Figure :-1

DISCUSSION:-

Reactionary postoperative hemorrhage is a rare but serious complication that occurs within the first 24 hours after surgery. It may result from inadequate hemostasis during surgery or slipped ligature. It is manifest as postoperative shock. The key to successful management is prompt diagnosis, immediate resuscitation, and operative intervention. We should aim at preventing such a complication. In this case, there was slippage of tubectomy ligature very soon after surgery which could have resulted from faulty technique.

The commonly performed method of tubectomy is Modified Pomeroy's operation. A loop of tube is grasped in the isthmus portion with a small atraumatic grasper such as a Babcock, approximately 2 to 3 cm from the cornual portion of the tube. The base of the loop is ligated with a no. 1 quickly resorbable suture such as plain catgut or chromic catgut. A second suture is then placed similarly, slightly above or below the first, making the loop at least 2.5cm long. The sutures are cut long to allow for easy identification if any bleeding occurs. The mesosalpinx within the loop is punctured with scissors, and approximately 1.5 cm segment of tube is then resected from the superior portion of the loop using scissors, leaving at least 5mm of stump at the ends. The two cut ends of remaining tube should be inspected to ensure that tubal lumen is visualized and hemostatic. Resecting too little can be ineffective if the section does not transect the tubal lumen. Leaving a tubal stump too small in the suture can result in the tubes slipping out of the knot and cause delayed bleeding. The

resulting reactionary hemorrhage can be significant, as the fallopian tubes are supplied by both the ovarian vessels and ascending uterine vessels which anastomose with one another within the mesosalpinx, immediately adjacent to the fallopian tubes. It is important that the ligating suture is secure enough to prevent immediate bleeding if it should slip, but not so tight as to cause strangulation of the tubal ends remaining, that could necrose and form a fistula with the peritoneum leading to failure of the procedure. Catgut is easily handled but has poor knot security which may be overcome by throwing square knots.

WHO states that women die as a result of complications during and following pregnancy and childbirth. Most of these complications develop during pregnancy and most are preventable or treatable. The major complications that account for nearly 75% of all maternal deaths are hemorrhage, sepsis, hypertension, difficult delivery and unsafe abortion.(2) The most recent report on the Confidential Enquiries into Maternal Deaths in the UK showed that 17 of 132 direct deaths were due to hemorrhage as there was lack of routine postoperative measurement of blood pressure, pulse, oxygen saturation and respiratory rate.(3) It is recommended that all women should have regular observations of these vital signs recorded on Modified Early Obstetric Warning Score (MEOWS) chart for the first 24 hours after a cesarean section. Our patient was not monitored in these lines and landed in severe hypovolemic shock (grade 4) with anuria.

Shock Index refers to heart rate (HR) divided by systolic blood pressure (SBP). The normal value is 0.5–0.7 in non-pregnant population and higher (0.9) among obstetric population (obstetric shock index-OSI). Increase in the pulse rate and a fall in SBP that is seen with significant hemorrhage, results in an increase in the OSI. It has been reported that if it increases above 0.9–1.1, intensive resuscitation may be required. As the OSI was 1.6 at admission, we started her on intensive resuscitation in the form of fluid replacement, oxygen supplementation by mask and ionotropes. The 'golden first hour' is the time at which resuscitation must begin to achieve maximum survival before metabolic acidosis sets in.

CONCLUSION:-

Following basic surgical principles prevents slippage of ligature and reactionary postoperative hemorrhage. Close monitoring of maternal vitals in the first 24 hours postop is very important in diagnosing such complication. This avoids missing the “first golden hour” in resuscitation of patient and prevents development of metabolic acidosis. Assessment of obstetric shock index in the scenario of obstetric hemorrhage can predict the volume of blood loss and need for operative intervention. Based on high obstetric shock index in the absence of postpartum hemorrhage, abdominal distension with evidence of hemoperitoneum on ultrasonography, our patient was taken up for emergency laparotomy, suspecting intra-abdominal bleed. The rare condition of slippage of chromic catgut applied over the tubectomy stump was identified and hemostasis secured. Simultaneous resuscitation and operative intervention, guided by calculation of obstetric shock index at admission resulted in optimum maternal outcome. Though the golden first hour was missed resulting in acute kidney injury, that also recovered spontaneously after our intervention.

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