HYPOGASTRIC ARTERY LIGATION (INTERNAL ILIAC ARTERY LIGATION) IN 10 CASES OF PELVIC HAEMORRHAGE

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SUMMARY

Hypogastric artery ligation (HAL) has proved life saving in serious pelvic haemorrhage. This procedure was carried out in 10 patients with good results. Transperitoneal approach was used.

2 patients, out of 10, died - one due to shock and one due to pulmonary embolism on 4th post-operative day.

INTRODUCTION

Hypogastric artery ligation (HAL) and Internal Iliac Artery ligation are synonymous. It has proved life saving in serious pelvic haemorrhage. But waiting too long to perform the procedure, is its biggest pitfall. (Reich W. J. & Nechtow J. R., 1961).

Suturing of lacerations, tight packing, volume replacement with i.v. fluids & blood transfusion, use of oxytocic agents like methyl ergometrine, oxytocin, prostaglandin etc. are the initial steps in management of patient with pelvic haemorrhage. Even after all the above measures, are utilised if the haemorrhage still continues, then HAL should be undertaken before patient's condition deteriorates too much and before patient enters into irreversible shock.

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Anatomy

Internal iliac artery is a branch of common iliac artery which goes posteriorly to supply pelvic organs. It is about 4 cms long & divides into anterior & posterior division. It is lateral to the ureter at the pelvic brim.

HISTORY AND HAEMODYNAMICS

Internal iliac artery ligation in Obstetrics and Gynaecology was first reported by Seigal and Mengert (1961) and Reich and Nechtow (1961). Transperitoneal approach was described by Lees and Singer in 1982.

Pregnancy after bilateral ligation of internal iliac and ovarian arteries was reported by Mengert et al (1969).

Extraperitoneal technique is useful when pelvic anatomy is disturbed by haematoma or when transperitoneal technique is unsuccessful. (Ball Thomas, 1963).

Burchell described haemodynamics after ligation of internal iliac in 1964. He demonstrated that it results in reduction of pulse pressure distal to the ligation by 77% on the side of ligation (if only one artery is ligated) and 85% if both arteries are ligated and only 14% on opposite side after unilateral ligation. Blood flow resembles venous flow. Reich and Nechtow found establishment of adequate collateral circulation so that no vascular embarrasment developes in pelvic organs. This was confirmed by follow-up pelvic angiography. (Burchell et al 1966 & 1969 & Allaha-badia et al 1991).

Second important thing is - Vagina is supplied by vaginal artery, a branch of hypogastric artery. Uterine artery ligation stops haemorrhage from the uterus but not from vaginal branch of hypogastric artery. Ligation of internal iliac arteries takes care of both and hence is superior in controlling haemorrhage.

METHOD (Transperitoneal)

A longitudinal incision of 4 to 5 cms. is made in the pelvic peritoneum at the level of bifurcation of common iliac, inferior and lateral to the ureter. The peritoneum with the ureter anchored is then gently reflected medially. Internal iliac vessels - artery and vein covered in single sheath are then exposed. With careful blunt and sharp dissection, artery is seperated from the vein (which lies directly

Table I

Obstetric Conditions : (Total 8 cases)

	No. of Patients
Primary Haemorrhage	
Primi patients with atonic haemorrhage during Caesarean Operation, not controlled by routines methods	2
Spontaneous Rupture of lower segment of the uterus	2
Placenta Previa & Placenta Accreta	2
Secondary Haemorrhage	
Haemorrhage after 10 to 11 days of Caesarean Operation	2
Gynecological Conditions : (2 cases)	
Haemorrhage 8 hours after Vaginal Hysterectomy + Repair (Primary Haemorrhage)	1
Secondary Haemorrhage 14 days after Abdominal Hysterectomy	1
Total	10

beneath the arteries). 2 ligatures of non-absorbable material (1-0 silk) are placed 0.5 cms apart over the aretery with aneurysm needle. Injury to internal iliac vein is dangerous and hence extra care must be taken while applying the sutures. Femoral pulse should be identified after the ligation to rule out external iliac ligation. The procedure should be repeated on other side.

Techniques involving the use of absorbable suture like 1-0 chromic catgut have also been described. It allows recanalization of vessels. (Dubay et al 1980). There is still controversy regarding placement of the ligature. Some recommend placement of ligature 3 to 4 cms. distal to bifurcation, so as to spare the posterior branch. While others recommend ligation as near the bifurcation so as to prevent formation of thrombus.

MATERIAL AND METHOD

At Sheth Chinai Maternity Home & Sheth Vadilal Sarabhai General Hospital, Ahmedabad, 10 patients underwent HAL for pelvic haemorrhage during the period October, 1986 to June 1992. In all patients, transperitoneal approach was used.

In 8 obstetric cases and 2 gynaecological cases hypogastric artery ligation was done. The detailed indications are listed in Table I. Haemorrhage either primary (atonic) or secondary, constitutes almost 50% of cases. (2 each i.e. 4 out of 8). Rupture uterus and placenta accreta constituted the rest of indications. In 2 cases (25%), HAL was needed after 10 to 12 days of primary procedure. Secondary haemorrhage following caesarean).

Haemorrhage 8 hours after vaginal hysterectomy and Secondary haemorrhage 5 days after abdominal hysterectomy necessiated HAL in gynec cases.

Results of this procedure were excellent as far as control of haemorrhage was concerned. 2 patients died out of 10. One patient died 2 hours after surgery due to irreversible shock, while another patient died on 4th day due to pulmonary embolism. No other minor or major complication was found in remaining 8 patients.

DISCUSSION

It is an excellent life saving technique to control pelvic haemorrhage. It has been described that complications and mortality attributed to the procedure are due to delay in carrying out the procedure - i.e. delay in taking decision for "Another" operation, rather than the procedure itself. (Except in the case where HAL is also performed per-operatively i.e. during some operation when haemorrhage is not controlled by routine vessels ligation).

In short, it is an operation that every gynec. resident should know & learn.

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