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SURGICAL MANAGEMENT OF POSTPARTUM AND PELVIC HAEMORRHAGE

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ABSTRACT

Despite the ready availability of banked blood and blood products, postpartum and pelvic haemorrhage remains one of the major causes of mortality and morbidity all over the world. In developing countries, as in Pakistan, it is among the first three causes of maternal mortality.

Sixty-one cases were included in this study over a period of nine years from various hospitals, such as

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   Affiliated with King Faisal University Al-Khobar (Saudi Arabia).

2. **Services Hospital, Lahore.**
   Affiliated with Allama Iqbal Medical College, Lahore (Pakistan).

3. **Bahawal Victoria Hospital, Bahawalpur.**
   Affiliated with Quaid-e-Azam Medical College, Bahawalpur (Pakistan).

Our management mainly based on surgical treatment alongwith conventional therapy.

KEY WORDS:

1. Postpartum and Pelvic Haemorrhage.
2. Hypogastric Artery Ligation (HAL)

METHOD AND MATERIAL:

All these cases have various causes for postpartum haemorrhage, though majority of them had atonic uterus. All cases were brought in as an emergency to the hospital, and had been previously handled by various non-medical and medical attendants in periphery. The details of these cases are as follows:

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CAUSES OF POSTPARTUM HAEMORRHAGE.	No. of Cases
Postpartum Haemorrhage due to :	
Atonic uterus.	15
Over distended uterus.	5
High parity.	5
Multiple gestations	3
Prolonged or rapid labour.	2
Birth canal lacerations	
Vaginal wall tear.	5
Cervical tear.	3
Perineal tear.	2
Ruptured uterus.	5
Uterine inversion.	3
Abnormal placentation.	5
Retained POC, early and late.	5
Coagulation defects such as DIC, ITP.	3

MANAGEMENT

The etiology of haemorrhage is the mainstay of the treatment. Approximately one third of maternal deaths were due to haemorrhage and uterine atony is the most common cause. The survival rate of bleeding patients is proportional to the length of time it takes to start the treatment. These patients bleed profusely and require aggressive treatment.

As soon as the diagnosis of haemorrhage is made, two large intravenous (14 to 16 Gauge) lubes should be placed. All blood specimen should be obtained for the lab. investigations as shown later on. A rapid volume replacement started with *5%* Dextrose, Haemaccel, and Blood transfusions.

Concurrent with Lab. evaluations and volumes replacement therapy, a thorough physical examination, specifically abdominal and pelvic regions should be made. Because uterine atony accounts for the majority of postpartum haemorrhage, the uterus is examined (we recommend routine uterine exploration after placental delivery) Uterine message simultaneous with oxytocin or ergometerine administration is then undertaken, in adequate dosage of produce clinical response.

If the uterus found to be firm but bleeding other causes should be sorted.

Birth canal lacerations, sutured under G.A. with chronic catgut number one, and canal was packed tightly with sterile gauze packs, a continuous bladder drainage is essential to keep a check on urinary output as well.

Patients who found to have uterine rupture were repaired if possible and bilateral tubal ligation considered individually on every patient.

Patients who had any evidence of coagulation defects, treated accordingly such as by giving liberal fresh blood transfusions, and by administering appropriate clotting factors.

Uterine inversion was reduced under G.A., followed by oxytocin infusion liberally. If all these conservative therapeutic steps failed, exportation of the uterine cavity done with blunt curette, gently because danger of uterine perforation is real one.

Perforations or lacerations of lateral uterine walls are more dangerous and bleed profusely than fundal ones. Uterine packing is not worth in our experience but tight vaginal packing is useful in birth canal injuries.

INVESTIGATION:

Blood	1. 2. 3. 4. 5. 6. 7.	Hb, WBC, RBC, MCV, Platelet count. Bleeding time, doling time Fibrinogen level. Fibrinogen degradation products. Grouping (AB + RH) and cross matching. Random blood sugar. Na, K, Urea and Creatinine level.
Urine	8.	Complete microscopic examination.
X-RAY	9.	Chest
ECG	10.	

SURGICAL MANAGEMENT

Once circulatory support is established and above conservative means have failed, surgical procedures to control the haemorrhage were carried out, these includes:

PROCEDURE	NO. OF CASES
Exploration of uterus.	50
Exploration of uterus and suturing of birth canal trauma.	10
ligation of hypogastric artery.	24
Hysterectomy	15

LIGATION OF HYPOGASTRIC ARTERY

Hypogastric Artery ligation and internal iliac artery ligation arc the same procedure. It is somewhat surprising to find that the method is misunderstood by many surgeons, even though it has proved lifesaving in serious haemorrhage. The procedure is reviewed in depth, with emphasis on certain aspects.

Reich and Ncchtow[1] emphasized that the biggest pitfall with hypogastric artery ligation is waiting too long to perform it. Lacerations suturing, volume replacement, and blood transfusion arc initial steps, depending upon situation. If patient's condition deteriorates despite these steps, action is necessary before condition becomes irreversible.

The second pitfall is treating pelvic haemorrhage in thinking that vaginal blood supply is derived from uterine artery or branch of it. The main supply to uterus is the uterine artery, a branch of hypogastric artery (internal iliac). The vagina is supplied by vaginal artery, another branch of hypogastric artery, while uterine artery ligation may stop haemorrhage from the uterus, it will not stop bleeding from vagina. As a matter of fact, ligation of hypogastric arteries usually stop haemorrhage from both.

The mechanism by which hypogastric Arteries Ligation (HAL) controls bleeding was thought to be one stopping blood How distal to the ligature. Reich and Nechtow[2] found the collateral circulation adequate in 82 patients undergoing bilateral HAL. In the mid 1960's Burchell[3,4] delineated the true mechanism by which HAL controlled hemorrhage. He demonstrated the most dramatic finding was a near elimination of the pulse pressure distal to ligation which decrease 77% from base line on the side of the ligation and 85% if both hypogastric arteries were ligated, but only 14% on the side opposite a unilateral ligation.

The effect of HAL is to change a pulsating arterial system to one resembling venues flow. When the arterial pulsations decrease, blood clots can form distal to the ligations and remain in place, rather than be blown off by the pulse pressure.

Burchell[5], and Siegaland and Mengert[6] found low circulatory embarrassment in their series. Over the past two years at West Virginia University 110 prophylactic bilateral HALs have been performed, no vascular embarrassment has developed in the pelvic viscera, bladder, bowel, buttocks, or vulva as a result of any of these HALs.

ANATOMY AND METHOD OF HYPOGASTRIC ARTERY LIGATION:

The Hypogastric artery is a branch of common iliac artery. The initial step is palpating the bifurcation of the external iliac and the internal iliac. Next the retroperitoneal space must be opened between the round ligament and fallopian tube, and the opening must extend to the lateral pelvic side wall. This will place the operator's finger 1 to 2 cm distal lo the bifurcation of the common iliac. The ureter is then identified and pushed gentle toward the mid line. Next the areolar tissue is dissected free from the vessels, the bifurcation identified, and the hypogastric artery isolated. Directly beneath the hypogastric arteries are the internal iliac veins. Care must be taken not to tear these because venous bleeding can occur with life-threatening rapidity and can be difficult to control.

Ideally the hypogastric arteries should be ligated distal to the posterior division, which is not always possible. In such a situation, die ligation of the hypogastric artery should be done 2.5 to 3 cm. distal to the bifurcation of the external and internal iliac arteries. After the adventitia is cleared from the vessel, a right-angle clamp is passed beneath the artery, doubly ligate the hypogastric with No. 1 silk or polyglycolic suture. There is no need to cut between the ligatures, in fact it should be avoided.

When performing his procedure, keep the ureters retracted toward the mid line. If there is any ozzing, place a strip of surgical and close the teropertioneal space.

Bilateral tubal ligation should be considered at this state if indicated in individual cases.

INDICATION FOR HYPOGASTRIC ARTERY LIGATION:

1. Teaching residents the technique
2. Uncontrollable vaginal vault bleeding after hysterectomy.
3. Postoperative intraperitoneal hemorrhage.
4. Lacerations of the cervix, vagina, lower uterine segment, and broad ligament.
5. Uterine atony.
6. Expanding retroperitoneal, vaginal and broad ligament hematoma.
7. Postpartum haemorrhage unresponsive to conservative treatment.

EMERGENCY HYSTRECTOMY:

In desperate situation when there is a raptured uterus which is unrepairable or there is atonic uterus not responding to conservative methods, emergency hysrectomy preferably sub-total is a lifesaving procedure.

RESULTS

Sr. No.	No. Of Patients	Procedure	Outcome
1.	24	Bilateral Ligation of hypogastric artery	22 survived 16 conceived within 2 years 2 deaths.
2.	15	Hysterectomy	13 survived 2dcaLhs.
3.	50	Exploration of uterus.	All survived.
4.	10	Repair of birth canal lacerations and ruptured uterus.	All survived

These four unfortunate patients who died, developed other complications alongwith pelvic haemorrhage, such as, irreversible shock, renal failure, DIC, and circulatory failure.

DISCUSSION

One should try to use oxytocin and allied components such as ergometerine and prostaglandins liberally to control this haemorrhage.

Once conservative medical means for controlling haemorrhage have failed, one should not hesitate to proceed for surgery. Previously described surgical procedures are lifesaving and should be taught to all medical practitioners who are working in Gynecology and Obstetrics.

In developing countries such as Pakistan, where majority of patients have no antenatal care, grand multiparous, grossly anaemic, un-diagnosed multiple gestations preeclampsia, eclampsia, prolonged obstructed un-attended labour, very brutally handled by non-medics and even sometimes by inexperienced medics, are more likely to develop pelvic haemorrhage, after delivery.

These procedures arc more useful and lifesaving in these patients.

It has been proved by various workers such as Reich[2], Burchell[4], Keith and Berger[7] Smith* if these procedures arc done properly and at an early stage of the disease.

In our study we have maximum patients with uterine atony and this procedure has worked very well in these cases. Sixteen of our cases did conceive after this procedure and had successful pregnancies, so this does prove that pelvis does have adequate collateral circulation established even after this procedure. Looking at our study we were very encouraged with our results and have made a standard policy in treating such patients.

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