Giorn. It. Ost. Gin. Vol. XXVIII - n. 9
Settembre 2006

Uterine devascularization

E. DOMINI*, S. GUAZZINI**, C. ORLOTTI***

SUMMARY: **Uterine devascularization.**

E. DOMINI, S. GUAZZINI, C. ORLOTTI

Uterine devascularization is a valuable alternative to hysterectomy or internal iliac arteries ligation in case of otherwise intractable obstetrical haemorrhage. Has a higher success rate as compared to that of internal iliac arteries ligation. Can be dealt with, vaginally or through abdomen, in this case may be employed curatively or preventively.

RIASSUNTO: **La devascolarizzazione uterina.**

E. DOMINI, S. GUAZZINI, C. ORLOTTI

La devascolarizzazione uterina è una semplice ed efficace alternativa all'isterectomia o alla legatura delle arterie ipogastriche in caso d'emorragie uterine incontrollabili. Ha una percentuale di successo superiore a quella della legatura delle arterie iliache interne. È di semplice esecuzione, può essere attuata per via vaginale o laparotomica; in quest'ultimo caso può essere impiegata a scopo terapeutico e come profilassi qualora si temano degli interventi particolarmente sanguinosi. L'approccio vaginale è una tecnica semplice, che può essere attuata anche da personale poco esperto. È particolarmente indicata nei Paesi a risorse limitate.

KEY WORDS: PPH - Uterine devascularization - Uncontrollable obstetrical bleeding.
Emorragie ostetriche incontrollabili - Emorragie del post partum - Legatura delle a. uterine
Devascolarizzazione uterina.

Preface

Incontrollable obstetrical bleeding is one of the major causes of maternal death and stands as first among the nightmares of the Obstetrician especially if working in under resourced countries, in rural hospitals.

Of the two, up to now recommend procedures, hysterectomy or internal iliac arteries ligation, the generally recommended, without delay, caesarean hysterectomy or hysterectomy especially if performed on nulliparous young women who may wish to have more children may result in devastating emotional and/or cultural consequences, while the internal iliac arteries ligation stays, quite frequently, beyond the training and skills of the Obstetrician.

To our experience, so far, only the uterine ligation meets both the above requirements, conservation of the uterus and ability to conceive and being within the skills of the surgeon.

The uterine arteries, ligation, successfully employed in quite a variety of obstetrical conditions (ranging from uterine atony to placenta previa and placenta percreta) presents with a higher success rate (80 to 96%) where compared to internal iliac arteries ligation (60%).

It is a procedure which, although described as back as in the 1950s (Waters, 1952, Tsirulnikov, 1960) has in the past years been unduly neglected as revealed by the quite few references of this technique as compared to the ones of internal arteries ligation or hysterectomy.

As the incontrollable uterine bleeding may occur after a vaginal delivery or during caesarean section, the devascularization may, therefore, be dealt with, vaginally or abdominally.

*Consultant Obstetrician Gynecologist, St. Kizito Hospital, Matany, Uganda
**Università degli Studi di Firenze
Scuola di Specializzazione in Ginecologia ed Ostetricia
(Direttore: M. Marchionni)
***I/C Surgery St. Kizito Hospital, Matany

© Copyright 2006, CIC Edizioni Internazionali, Roma

Before we start describing the procedures we strain on the mental attitude to be kept while dealing with an otherwise intractable obstetrical haemorrhage "Do not hesitate in performing the hereby described procedures; they are not dangerous ones and also if performed when not strictly necessary they will, by no way, harm the patient or impair her ability to conceive; while delaying them, in case of profuse bleeding, especially in sub-Saharan Africa where anaemia is endemic, may easily lead to disaster.

The vaginal approach: the Authors feel very much indebted to Dr. Hebish and Huch for their excellent work first describing this minimally invasive, easy to perform, time and life saving procedure; life saving as no precious time is wasted by taking the Pt. to Theatre and organising it for the operation to start.

Since we got acquainted with this technique, it was employed twice, preventing us from turning to the abdominal approach, not always easy in rural hospitals.

The procedure is as follows, we are freely quoting from the original paper.

"Pt. is placed in lithotomic position, a short IV Line passed, (if Pt. has collapsed consider the femoral gateway); an Oxytocin and 50% dextrose drip started; mild sedation or ketamine may be given (ketamine has the advantage of slightly raising the BP); a self retaining urinary bladder catheter is, also, passed. The anterior and posterior cervical lips are clamped with a sponge holding forceps. A 2 cm horizontal incision is made in the anterior cervix about 1 cm beneath the estimated vaginocervical fold and the bladder is reflected in the natural plane using a swab or a stick. A gentle but firm traction is used to pull the uterus downwards and sideways towards the controlateral side of the intended ligature, to maximise cephalad and lateral access; at this point we put a third sponge holding forceps on the margin of the cervix where the ligation will be placed and with the index finger we feel for the uterine artery - whose pulsation is readily palpable and sometimes visible.

From cephalad and behind the bladder, at the level the pulsation is felt, a curved, round bodied, needle with N° 1 chromic catgut is led to the myometrium (1 cm medially to the margin of uterus) encircles the vein and the artery, comes out and the stitch is ligated; by further gentle traction on the thread three more rounds of running suture are passed and then tied.

In case the Obstetrician does not feel confident with this procedure a very same result can be obtained by placing two sponge holding forceps on each margin of the cervix-LUS and leaving them in place for 24 h.

The abdominal approach may be employed curatively or preventively.

Curatively; it is over 15 years since one of the Authors (Domini E., 1990) first started employing, curatively, this procedure; at the very beginning, as suggested by Tsirulnikov, by legating ascending branches of uterine arteries, terminal branches of the ovarian arteries and round ligament a.; but it was soon felt it to be quite redundant a treatment, as in most cases bleeding was controlled by the only ascending uterine arteries ligation; it was therefore resolved to a stepwise approach; to start with the ligation of the ascending branches of uterine arteries and proceed, if bleeding not under control, with the ligation of the terminal branch of the ovarian arteries and then of the round ligament ones. The indication is any incontrollable obstetrical bleeding independent from the cause it derives from; placenta previa, uterine atony, Couvelhaire uterus due to abruptio placentae, or in case of otherwise incontrollable post partum haemorrhage.

Procedure: the uterus is delivered from the abdominal cavity and raised; it will result in the narrowing of the uterine arteries and the amount of blood supplied to the uterus will be reduced, by the same time the ureters will be displaced downwards.

In case of LUS caesarean section follow the 2 x 3 rule (two cm below hysterotomy, three cm medial to the margin of the uterus). The bladder, if needed, is reflected off this part of the uterus as to free the above mentioned area (2x3); a Mayo curved, round bodied needle with N° 1 chromic catgut is led from the anterior uterine wall up to the posterior one and, in order to avoid including the round ligament in the suture, transfixes the avascular area below the round ligaments; the stitch is tied, the arteries is not cut.

The uterus, usually, will go pale, show fibrillary contractions and will contract or at least becomes firmer; and most likely the bleeding, will stop right after.

If the control of the bleedings does not appear satisfactory a further steps consists of the ligation of the terminal branch of the ovarian artery, near to the cornua; this step usually is not necessary as the uterine arteries provide more than the 90% of the blood supply of the uterus; Tsirulnikov also recommends ligation of the round ligament.

About the timing of this procedure, in case of Caesarean section, we first apply, bilaterally, a curved klemmer (which are always present in our caesarean section set) to the uterine arteries, then complete the repair of the hysterotomy and then we proceed with the ligation of uterine arteries.

The ligated uterus is then compressed with a warm pack to expel any collected blood, and covered with a

sterile towel, thighs are flexed and knees kept together, the vagina is mopped out and observed for 10 minutes, if bleeding has stopped, the abdomen can be closed.

Preventively; when a severe uterine bleeding is expected; the ascending branch of the uterine arteries can be easily identified as quoted by Couvelhaire; it is the area where the uterine artery stops being mobile and starts being adherent to the uterus, it is well above the cervical branches and 3 c and far away from the ureters. That is the place where the stitch has to be applied.

Bibliografia

1. COUVELAIRE A.: *Introduction à la chirurgie uterine obstetricale.* Steinheil, Paris, 1913.
2. DOMINI E., TIMON D.: *Manuale di Ostetricia e Ginecologia Tropicale.* 342-345 CIC Edizioni Internazionali, Roma, 1990.
3. HEBISH G., HUCH A.: *Vaginal artery ligation avoids high blood loss and puerperal hysterectomy in post partum haemorrhage.* Obstetrics & Gynecology 100: 574-578, 2002.
4. FAHMY K.: *Uterine artery ligation to control post partum haemorrhage.* Int. J. of Obstetrics and Gynaecology 25(5): 363-7, 1987.
5. O'LEARY J.A.: *Uterine artery ligation in the control of postcesarean haemorrhage.* J Reprod Med Mar, 40(3): 189-93, 1995.
6. SALVAT J., SCHMIDT M.H., GUILBERT M., MARTINO A.: *Vascular ligation for severe obstetrical haemorrhage: review of the literature.* J Gynecol Obstet Biol Reprod (Paris) 31(17): 629-39, 2002.
7. TSIRULNIKOV VERSPYCK E., RESH B., SERGENT F., MARPEAU L.: *Surgical uterine devascularization for placenta accreta, immediate and long term follow up.* Acta Obstet Gynecol. Scand 84 (5): 444-7, 2005.
8. WATERS E.G.: *Surgical Management of postpartum haemorrhage with particular reference to ligation of uterine arteries.* Am J Obstet Gynecol 64: 1143-8, 1952.

GIORNALE ITALIANO DI OSTETRICIA E GINECOLOGIA

CIC Edizioni Internazionali

| Aims & Scope - Copyright | Contatti | Home | Credits |

ACCESSO

Utente

Password

- Profilo utente
- Registrazione

RIVISTA

- Presentazione
- Media Planner
- Ultimo numero
- Archivio numeri precedenti
- Ricerca
- Abbonamento
- Forthcoming Events

INFO

- Informazioni per gli autori
- Sito web della società scientifica

Gentile Lettore,

il **Giornale Italiano di Ostetricia e Ginecologia**

è consultabile anche on-line

Al sito si accede direttamente all'indirizzo

www.giog.it

oppure attraverso il link della nostra casa editrice

www.gruppocic.it

nella sezione "Giornali, Riviste, Newsletter"

La ricerca bibliografica si effettua tramite: titolo, autore, anno di pubblicazione, abstract e tipologia di articolo (case report, clinical case, ecc.)

Nell'archivio sono presenti tutti i numeri del ***2003****,* ***2004*** *e* ***2005****.*

L'Editore