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Perioperative Utilization of Internal Iliac Artery Balloons, Does it really help in Case of Abnormal Placental Invasion?

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Editorial

The abnormal placental invasion is characterized by partial or complete abnormal adherence of the placenta to the underlying uterine wall (accreta, increta and percreta) [1,2]. It is correlated with significant morbidity and mortality for both mother and fetus, mainly because of the severe peripartum bleeding and preterm birth [3,4]. Maternal mortality is almost 7%, despite optimal planning and surgical management [4,5]. Recent years, some people claim that perioperative use of internal iliac artery balloons may be helpful in patients with abnormal placental invasion [5,6]. However, the utilization of this technique represents an area of ongoing debate, mainly because its efficacy still remains unproven [5,6].

The technique of internal iliac artery balloons in patients with abnormal placental invasion, was first described in 1997 by Dubois [7]. On the day of delivery, balloon catheters are placed in both internal iliac arteries using Seldinger technique, via the transcutaneous common femoral artery approach and under fluoroscopic guidance [6-10]. The proper positioning of the balloon catheters and the effective vascular occlusion are angiographically confirmed [6-10]. Subsequently, patient is taken directly to the operating theatre for caesarean section [6-10].

After the delivery of fetus and clamping umbilical cord, internal iliac artery balloons are inflated according to the surgeon's discretion and the timing of inflation is recorded [6,10]. The technique causes only temporary relief in intraoperative pelvic bleeding, mainly because of the fact that major anastomotic routes in the female pelvis will function soon after balloon inflation [6,8-15]. In most cases, balloon inflation could significantly reduce pelvic blood supply, although complete cessation is quite difficult [9-11,13,14]. However, in some cases there is adequate blood perfusion only a few cm lower to the inflated balloons [9-11,13,14].

Based on the above mentioned, internal iliac artery balloons should be inflated only with the onset of severe and uncontrolled pelvic bleeding [6,9-15]. In this way, we minimize local blood supply and control dramatic blood loss by using the technique only when it is absolutely necessary [6,9-15]. Moreover, we avoid the development of additional anastomotic channels in the female pelvis by using the method appropriately [6,9-15]. There are many advantages regarding the use of internal iliac artery balloons in cases with abnormal placental invasion [10,14]. The most important of them, is the significant reduction of intraoperative blood loss [9,10,14]. In this way, we avoid uncontrolled and life threatening situations during a caesarian section complicated with abnormal placental invasion [10,14]. Moreover, there is an essential reduction in overall transfusion requirements over the perioperative period [9,10,14]. Furthermore, there is a better visualization of the surgical field during operation, which helps surgeon to recognize anatomical structures and minimize surgical complications [9,10,14,16].

The main limitation in this technique, is the fact that female pelvis has an extended vascular network with multiple anastomoses [8,9,11,13-15]. However, we could easily overcome this limitation, by inflating internal iliac artery balloons only when it is absolutely necessary [9,11,13-15]. Based on data published on case reports and larger series, there are some complications related with the utilization of internal iliac artery balloons [6,8,14]. The development of these complications usually depends on operator's experience, used technique, available equipment and patient's characteristics [6]. Although it is very difficult to estimate accurately, the overall complication rate usually varies between 6-16% [6,8,12,14].

Pulmonary embolism, thromboembolic events (5%) and lower limb ischemia, represent some major complications [6,8,12,14,16-18]. Arterial spasm, hematoma, false aneurysm,

nerve injury, allergy in radiographic contrast media and nephrotoxicity, represent some minor complications in patients treated with this technique [6,8,12,14,16-18]. Additionally, air in pressurized lines and symptomatic hypotension are some less common complications [6,8,14,16-18]. In conclusion, the utilization of internal iliac artery balloons is very helpful in cases of abnormal placental invasion [9,10]. In many cases caesarean hysterectomy could not be avoided, as the technique has only temporary effect on intraoperative blood loss [9,14]. Moreover, future studies are needed in order to investigate more accurately the efficacy of this approach in patients with abnormal placental invasion [6,10,13].

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