

## •临床研究 Clinical research•

前置胎盘剖宫产术中行子宫动脉栓塞术对防治  
产后出血的应用

宋 杰, 王黎洲, 李 兴, 蒋天鹏, 吴晓萍, 周 石

**【摘要】 目的** 探讨前置胎盘剖宫产术前经股动脉子宫动脉置管术后中行子宫动脉栓塞术的临床疗效。**方法** 回顾性分析 17 例前置胎盘剖宫产术前经股动脉子宫动脉置管后,术中再行子宫动脉栓塞术的患者(术前置管栓塞组)与 18 例前置胎盘剖宫产术后行子宫动脉栓塞术患者(术后置管栓塞组)的临床资料,比较两种手术方式在防治产后出血方面的效果。**结果** 术前置管栓塞组中未发生弥散性血管内凝血(DIC),术后置管栓塞组有 5 例(26.3%)患者发生 DIC,两组差异有统计学意义( $P < 0.05$ )。术前置管栓塞组的出血量为( $1\,134 \pm 912$ )ml,术后置管栓塞组为( $5\,067 \pm 1\,698$ )ml( $P < 0.05$ )。术前置管栓塞组无栓塞失败病例,子宫收缩异常 3 例,剖宫产术后晚期产后出血 1 例,产后新生儿窒息 1 例。术后置管栓塞组 2 例栓塞效果不佳,行子宫切除术;子宫收缩异常 8 例,剖宫产术后晚期产后出血 2 例,产后新生儿窒息 2 例。**结论** 剖宫产术前置管,术中胎儿娩出后行子宫动脉栓塞安全、有效,能减少术中、术后出血量及术后并发症的发生,但仍需多中心大规模随机对照临床实验进一步证实其疗效。

**【关键词】** 前置胎盘; 产后出血; 子宫动脉栓塞术; 剖宫产术

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**Uterine artery embolization performed during cesarean section due to placenta previa: its application in preventing postpartum hemorrhage** SONG Jie, WANG Li-zhou, LI Xin, JIANG Tian-peng, WU Xiaoping, ZHOU Shi. Department of Radiology, Affiliated Hospital of Guiyang Medical College, Guiyang, Guizhou Province 550004, China

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**【Abstract】 Objective** To evaluate the clinical efficacy of uterine artery embolization performed during cesarean section due to placenta previa. **Methods** Uterine artery catheterization via femoral access was performed in 17 patients with placenta previa (group A) before cesarean section was carried out. And during the cesarean section operation uterine artery embolization was conducted. In another 18 patients with placenta previa (group B) uterine artery embolization was employed after cesarean section operation was done. The prophylactic effect against postpartum hemorrhage was evaluated, and the results were compared between the two groups. **Results** No disseminated intravascular coagulation (DIC) occurred in the patients of group A, while five patients of group B developed DIC (26.3%) after the treatment. The difference in the incidence of DIC was statistically significant between the two groups ( $P < 0.05$ ). The average amount of blood loss of patient in group A and in group B was ( $1\,134 \pm 912$ ) ml and ( $5\,067 \pm 1\,698$ ) ml respectively ( $P < 0.03$ ). In group A technical success was obtained in all patients, and complications included abnormal uterine contraction ( $n = 3$ ), late postpartum hemorrhage ( $n = 1$ ) and neonatal asphyxia ( $n = 1$ ). In group B poor embolization result was seen in two patients and hysterectomy had to be carried out, and complications included abnormal uterine contraction ( $n = 8$ ), late postpartum hemorrhage ( $n = 2$ ) and neonatal asphyxia ( $n = 2$ ). **Conclusion** Uterine artery embolization performed during cesarean section operation after delivery is safe and effective, it can effectively reduce the blood loss during and after the surgery as well as the occurrence of postoperative complications, although this efficacy needs to be further proved through multicenter large-scale randomized controlled clinical trials.(J Intervent Radiol, 2013, 22: 418-421)

**【Key words】** placenta previa; postpartum hemorrhage; uterine artery embolization; cesarean section

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前置胎盘是较为常见的产科并发症,也是导致妊娠晚期发生难治性产后出血的主要原因。多数学者认为难治性产后出血是出血量在 1 000 ml 以上并伴有低血容量表现且通过药物治疗后无好转的严重产后出血<sup>[1]</sup>,对孕产妇的生命安全造成严重威胁。目前剖宫产是前置胎盘终止妊娠的主要方法,但是由于前置胎盘在剖宫产术中胎盘剥离面的止血治疗相当困难,伴随介入治疗的发展,超选择子宫动脉栓塞(uterine arterial embolization, UAE)以其微创及保留子宫的特点在产科领域广泛应用,为产后出血的治疗提供安全有效的方法。我们尝试对部分前置胎盘和(或)胎盘植入的患者剖宫产术前先经股动脉穿刺子宫动脉置管,在胎儿娩出后立即行 UAE 术,均取得较好的临床疗效,现报道如下。

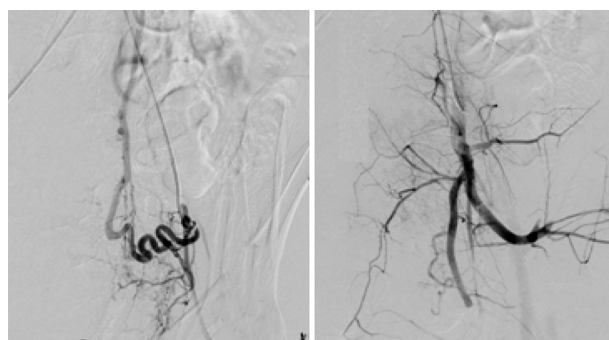
## 1 材料与方法

### 1.1 临床资料

收集我院 2011 年 6 月至 2012 年 8 月前置胎盘剖宫产手术前子宫动脉置管术中行 UAE 17 例,以及前置胎盘剖宫产术后插管行 UAE 18 例的患者资料。术前置管术中栓塞组孕产妇平均年龄( $30 \pm 7$ )岁(22 ~ 38 岁),平均孕周( $34.6 \pm 3.4$ )周(31 ~ 38 周),平均妊娠( $2.8 \pm 1.7$ )次(1 ~ 5 次),平均分娩次数( $1.7 \pm 1.6$ )次(1 ~ 4 次)。术后置管栓塞组孕产妇平均年龄( $30 \pm 5$ )岁(24 ~ 37 岁),平均孕周( $34.9 \pm 3.6$ )周(31 ~ 37 周),平均妊娠( $3.7 \pm 2.2$ )次(1 ~ 6 次),平均分娩次数( $2.1 \pm 1.3$ )次(1 ~ 4 次)。

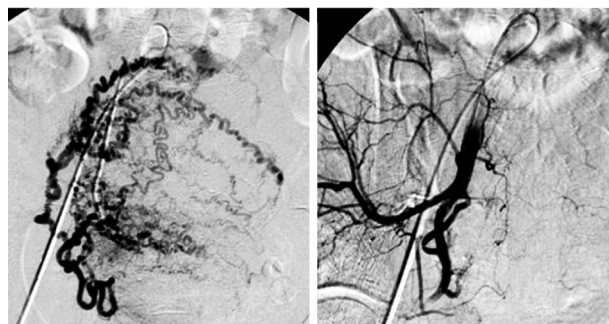
### 1.2 手术方法

所有患者手术均在我院杂交手术室由放射科及产科共同完成,术前置管术中栓塞组先采用局部麻醉,于剖宫产术前 30 min 行一侧股动脉穿刺,使用 5 F 子宫动脉导管超选择对侧子宫动脉插管并造影证实,予肝素盐水封管后留置导管备用,待术中胎儿娩出后,经留置导管缓慢注入直径 1 000 ~ 1 200  $\mu\text{m}$  混合对比剂的明胶海绵颗粒悬液,最后造影证实对侧 UAE 完全,再以成袢技术完成同侧子宫动脉超选择插管及栓塞治疗(图 1),随后拔管,局部加压包扎。术后置管栓塞组于剖宫产术后发生产后出血时立即于宫内填塞纱条压迫止血,同时穿刺股动脉超选择子宫动脉插管,栓塞的材料及方法与术前置管术中栓塞组相同;双侧 UAE 后 2 h,若无继续出血且患者血压稳定,取出宫内填塞纱条,再观察约 30 min 并确认无出血后拔管(图 2),局部加压包扎。



1a 胎儿娩出后经左侧子宫动脉 1b 使用明胶海绵颗粒栓塞左侧预留导管造影可见对比剂外溢 子宫动脉后行左侧髂内动脉造影示子宫动脉栓塞良好

图 1 术前子宫动脉置管术后栓塞图像



2a 超选择插管至右侧子宫动脉 2b 使用明胶海绵颗粒栓塞右侧子宫动脉后行右侧髂内动脉造影示 UAE 良好

图 2 前置胎盘剖宫产术后大出血即行 UAE 图像

### 1.3 统计学方法

数据应用 SPSS19.0 统计分析软件包进行分析。所有变量均以均数  $\pm$  标准差( $\bar{x} \pm s$ )表示,计量资料采用  $\chi^2$  检验,计数数据采用  $t$  检验进行比较。 $P < 0.05$  认为差异有统计学意义。

## 2 结果

### 2.1 栓塞止血的情况

17 例术前置管术中栓塞组无栓塞失败病例;18 例术后置管栓塞组 2 例栓塞效果不佳,DIC 无法纠正,为挽救患者生命最终行子宫切除术。

### 2.2 出血量及并发症

17 例术前置管术中栓塞组的出血量为( $1\,134 \pm 912$ )ml;18 例术后置管栓塞组出血量为( $5\,067 \pm 1\,698$ )ml( $P < 0.03$ )。术前置管术中行 UAE 术组中未发生 DIC,术后行 UAE 术组有 5 例(26.3%)患者发生 DIC,组间差异有统计学意义( $P < 0.05$ )。术前置管术中栓塞组发生子宫收缩异常者 3 例,剖宫产术后晚期产后出血者 1 例,产后新生儿窒息 1 例。术后置管栓塞组发生子宫收缩异常者 8 例,剖宫产术后晚期产后出血者 2 例,产后新生儿窒息 2 例。6

例患者栓塞后出现宫缩疼痛;3 例患者术后有不同程度的臀部及会阴部疼痛,均未作特殊处理,3~5 d 后自行缓解。术后一过性体温升高患者 8 例,最高体温未超过 38.5℃,予物理降温后缓解,低热持续时间均未超过 24 h。

### 3 讨论

#### 3.1 关于 UAE 手术的适应证及疗效评价

UAE 后血循环暂时受阻,由于盆腔血管脏支之间、脏支与壁支之间存在丰富的吻合支,有少量的血液能够通过侧支循环到达子宫毛细血管床以维持子宫的血液供应,所以栓塞后子宫不会发生缺血坏死。因所使用的栓塞材料为明胶海绵颗粒,一般 14~21 d 被身体吸收后原栓塞血管复通,不会影响盆腔毛细血管侧支循环的建立,让子宫、卵巢、膀胱、直肠等盆腔脏器获得足够的血供。

Hansch 等<sup>[2]</sup>于 1979 年首次报道产后出血行髂内动脉结扎治疗失败,而采用动脉栓塞止血治疗成功病例后,UAE 被应用于剖宫产术后、流产后以及难治性产后出血的止血治疗。据文献报道,UAE 治疗难治性产后出血的成功率高达 91.0%~100.0%<sup>[2-4]</sup>,但伴有严重凝血功能障碍或血流动力学不稳定者栓塞术疗效欠佳<sup>[5]</sup>。UAE 治疗的优点在于能保留了患者的子宫,且通过血管造影能发现平均流速为 1~2 ml/min 的对比剂溢出表现<sup>[6]</sup>,所以止血效果确切。

#### 3.2 不良反应与并发症

UAE 术后的一般并发症包括穿刺部位血肿、组织损伤以及栓塞后缺血性疼痛,严重并发症有子宫、阴道上段、膀胱发生梗死、感染,急性下肢动脉栓塞和罕见的放射病等<sup>[6-7]</sup>。据多数文献报道使用明胶海绵颗粒栓塞术后一过性下肢感觉障碍、低热及疼痛等较为常见<sup>[7]</sup>。本研究除了术后腹痛、臀部疼痛、下肢麻木及低热等反应外均无严重不良反应与并发症的发生。UAE 后疼痛一般不需特殊处理,均能自行缓解。Eriksson 等<sup>[7]</sup>对 20 例严重产后出血行 UAE 患者术后进行研究发现,所有病例月经正常,没有近远期并发症,其中 7 例再次成功妊娠,5 例足月妊娠,2 例早产,产后婴儿健康。Descargues 等<sup>[8]</sup>对 25 例产后出血 UAE 治疗的患者随访 3~6 年,术后月经均能恢复正常,其中 9 例希望受孕者中有 8 例再次妊娠成功,6 例足月妊娠且无妊娠并发症发生,产后新生儿发育正常,2 例因意外妊娠行人工流产。

#### 3.3 UAE 在杂交手术室的应用

目前传统的外科及介入手术室已不能满足介

入和常规外科等多学科联合治疗如产后大出血等危急重症的需求,因此有必要创立既能满足外科操作又能进行介入治疗的多功能杂交手术室。随着 UAE 在产科治疗中的广泛应用,已逐渐成为前置胎盘合并胎盘植入的一种重要治疗方法。由于子宫下段血管丰富,其肌肉收缩力较差,胎盘剥离面的血窦常不易闭合,因此剖宫产术中及术后发生大出血的风险很高,尤其是当胎盘种植于子宫下段前壁时,切开子宫时极易损伤胎盘导致大出血,同时羊水亦可经此创面进入子宫血窦,诱发急性 DIC 造成严重的凝血障碍,进一步加重出血,无论是急诊还是择期手术均应视为高危手术,因此于杂交手术室开展联合手术可降低高危产妇大出血危急生命的风险。

我院对于术前 B 超明确诊断为前置胎盘、瘢痕子宫合并前置胎盘或胎盘植入可能性大且有生育要求的患者,均在杂交手术室由介入科与产科医师同台开展联合手术,术前介入科医师先进行股动脉穿刺子宫动脉置管,然后由产科医师行剖宫产;术中待胎儿娩出后立即行 UAE,手术出血量及栓塞止血效果等方面均较本研究术后栓塞组有优势。剖宫产术中胎儿娩出后行 UAE 能有效减少术中及术后出血量、缩短抢救时间,降低术后并发症的发生率;因此预防性应用介入治疗对于降低前置胎盘孕产妇致死性出血风险的意义重大。但本实验样本较小,仍需多中心大规模随机对照临床实验进一步证实其疗效。

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## ·临床研究 Clinical research·

### 急性肾出血 25 例动脉造影所见及栓塞治疗

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**【摘要】 目的** 探讨急性肾出血动脉造影的不同表现及其栓塞治疗的方法与疗效。**方法** 2009 年 1 月—2011 年 12 月对 25 例保守治疗无效的急性肾出血患者行选择性动脉造影, 根据肾出血动脉造影的不同表现, 以明胶海绵、PVA 颗粒和弹簧圈等栓塞剂行栓塞治疗。**结果** 20 例患者动脉造影可见对比剂外溢, 其中 2 例合并假性动脉瘤, 2 例合并肾动静脉瘘, 1 例合并肾动脉-肾盏瘘, 1 例为假性动脉瘤破裂合并肾动静脉瘘; 另 5 例显示为肿瘤血管。25 例患者采用不同栓塞剂栓塞后出血完全停止, 随诊 4 ~ 10 个月, 均无再次出血及严重并发症发生。**结论** 急性肾出血动脉造影的各不相同, 仔细甄别并选用不同栓塞剂治疗取得了满意的临床疗效。超选择性动脉栓塞治疗急性肾出血能有效止血、最大限度地保存肾功能, 可作为肾出血的安全、有效、微创的治疗方法。

**【关键词】** 肾; 出血; 动脉造影; 栓塞

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**Acute renal hemorrhage: its angiographic manifestations and arterial embolization therapy** XU Wei, ZHOU Tan-yang, WANG Kai-bing, SHI Zhong-xing, CAO Hai-li, CHEN Bao-xiang, WANG Fa, WANG Hong-hui. Department of Interventional Radiology, the Second Affiliated Hospital of Harbin Medical University, Harbin, Heilongjiang Province 150086, China

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**【Abstract】 Objective** To discuss the different angiographic manifestations of acute renal hemorrhage and the appropriate embolization measures. **Methods** During the period from January 2009 to December 2011, a total of 25 patients with acute renal hemorrhage who had failed to respond to the conservative treatment were admitted to authors' hospital. Referring to the angiographic manifestations, super-selective arterial embolization by using appropriate embolic agents, such as gelatin sponge, polyvinyl alcohol particles or steel coils, was carried out in all patients. The patients were followed up for 4 - 10 months, and the results were analyzed. **Results** The renal angiography showed that contrast extravasation was seen in 20 cases. Of the 20 patients, coexisting pseudoaneurysm was found in 2, accompanied arteriovenous fistula in 2, artery-calyces fistula in one and ruptured pseudoaneurysm together with arteriovenous fistula in one. Tumor vasculatures were revealed in 5 patients. Based on the angiographic findings different embolic agents were employed in different patients. During the follow-up period no recurrent bleeding or severe complications occurred in all patients. **Conclusion** Acute renal hemorrhage has different angiographic signs. Through carefully observing the angiographic manifestations and strictly selecting appropriate embolic agents, satisfactory clinical effectiveness

can be achieved with embolization therapy. Superselective renal artery embolization can effectively stop the bleeding and preserve the renal function to the greatest possible advantage. Therefore, as a safe, effective and micro-invasive treatment for acute renal hemorrhage this technique should be

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