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doi: 10.13241/j.cnki.pmb.2017.07.030

胸主动脉夹层腔内修复术中封闭左锁骨下动脉的疗效观察 *

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摘要 目的:探讨胸主动脉夹层腔内修复(TEVAR)术中封闭左锁骨下动脉(LSA)的疗效。**方法:**抽选我院2005年2月-2016年5月收治的608例TEVAR患者,其中未实施LSA封堵者396例,实施LSA封堵者212例,分析TEVAR患者LSA封堵及未封堵围手术期术后脑梗、截瘫等并发症的发生率,随访并回顾发生远期脑梗死、截瘫患者资料。**结果:**608例TEVAR患者术后均未出现左上肢严重缺血;LSA未封堵与封堵发生术后近期脑梗死、截瘫的概率分别为0.51%(2/396)VS 0.47%(1/212)、0.75%(3/396)VS 0.47%(1/212),比较差异无统计学意义(P>0.05)。平均随访(30.5± 3.7)个月,共509例患者获得随访,其中死亡53例,随访时间内出现远期脑梗5例(LSA未封堵3例、封堵2例)。随访期间术前及术后截瘫共8例,2例分别在术后第7天、1月死亡,1例失访,其余患者下肢肌力在随访结束时均逐渐恢复至4级及以上。**结论:**对于主动脉夹层(TBAD)患者,TEVAR术中封闭LSA是可行的,不会引起急性后循环缺血,左上肢可很好耐受LSA封堵,不会增加术后近远期脑梗死、截瘫等严重并发症的风险。

关键词:主动脉夹层;胸主动脉夹层腔内修复;左锁骨下动脉;脑梗死;截瘫

中图分类号:R543.1;R605 **文献标识码:**A **文章编号:**1673-6273(2017)07-1318-03

Clinical Analysis of Left Subclavian Artery Coverage During Thoracic Endovascular Aortic Repair*

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ABSTRACT Objective: To investigate the effect of closed left clavicle artery (LSA) during thoracic endovascular aortic repair (TEVAR). **Methods:** 608 cases of TEVAR patients in our hospital in February 2005-May 2016 were selected, Among them,there were 396 cases of no-closed LSA, and 212 cases of closed LSA, Analysis of the incidence of perioperative complications such as postoperative cerebral infarction and paraplegia in patients with TEVAR of closed LSA or no-closed LSA, Followed up and reviewed the data of patients with cerebral infarction and paraplegia. **Results:** 608 cases of TEVAR patients did not appear severe ischemia of the left upper limb; The probability of cerebral infarction and paraplegia between no-closed LSA and closed LSA was 0.51%(2/396)VS 0.47%(1/212),0.75%(3/396)VS 0.47%(1/212), the difference was not statistically significant (P>0.05). Average follow-up (30.5± 3.7) months long, 509 patients were followed, including the death of 53 cases, follow-up time appear long-term cerebral infarction of 5 cases (no-closed LSA of 3 cases, closed LSA of 2 cases). During the follow-up period, there were 8 cases of paraplegia preoperative and postoperative, 2 cases died in the seventh day and January respectively after the operation. 1 cases were lost to follow-up, In the rest of the patients, lower limb muscle strength gradually recovered to more than 4 levels at the end of follow-up. **Conclusion:** It is feasible to close LSA in TEVAR operation for TBAD patients, which will not cause acute posterior circulation ischemia, left upper limb can be well tolerated closed LSA , and does not increase the risk of severe complications such as cerebral infarction and paraplegia.

Key words: Type Baortic dissection; Thoracic endovascular aortic repair; Left subclavian arter; Cerebral infarction; Paraplegia

Chinese Library Classification(CLC): R543.1; R605 Document code: A

Article ID: 1673-6273(2017)07-1318-03

前言

胸主动脉夹层(type Baortic dissection,TBAD)是一种心血管危重疾病,因主动脉内膜撕裂,导致血流顺着主动脉长轴扩展,致使患者主动脉真假两腔分离而形成[1-3]。据统计[4],未经治疗的TBAD患者死亡率高达80%,预后极差。胸主动脉腔内修

* 基金项目:河北省卫生厅计划项目(20130361)

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(收稿日期:2016-06-14 接受日期:2016-07-08)

复术(TEVAR)因其创伤小、患者痛苦少、手术时间短、并发症少、较开放式手术适应证宽等优点,已成为近年来治疗胸主动脉夹层的首选方法[5-7]。但有研究[8]认为,TEVAR 手术常因患者胸主动脉覆膜支架近端锚定区不足而累及封堵左锁骨下动脉(LSA),从而改变了患者脑循环以及脊髓血供,这样会大大增加并发脑梗和截瘫的风险。但是对于 LSA 封堵的风险仍然在不少争议。本文观察 TEVAR 术中封闭 LSA 的疗效,现报道如下。

1 资料和方法

1.1 临床资料

抽选我院 2005 年 2 月 -2016 年 5 月收治的 608 例 TEVAR 患者,其中未实施 LSA 封堵者 396 例,实施 LSA 封堵者 212 例,其中男 525 例,女 83 例,年龄 40-73 岁,平均(65.8± 8.6)岁。入院时发病时间 8 h 至 2 月。术中封堵 LSA 原因:203 例为近端破口距 LSA 距离< 15 mm 或主动脉弓形态不佳;9 例为主动脉弓分支畸形。本组患者合并高血压 555 例(90.5%)、合并糖尿病 29 例(4.8%)、合并冠心病 54 例(8.9%)、合并慢性肾功能不全 72 例(11.8%)、术前截瘫 4 例(0.7%)。术后平均随访(30.5± 3.7)个月。

1.2 方法

经术中造影和 CTA 检查,明确患者主动脉病变距 LSA 开口距离,如足够进行覆膜支架锚定时(对于夹层第一裂口上缘距 LSA 开口下缘> 15 mm),常规行 TEVAR 手术。近端锚定距离不足时,根据术前 CTA 以及血管造影结果,评估无名动脉、双侧颈总、Willis 动脉环及椎动脉情况,当存在右侧椎、颈动脉狭窄,左侧优势椎动脉时,则行 LSA 动脉重建或使用单分支覆膜支架保留 LSA,再行 TEVAR 手术治疗。LSA 动脉重建:LSA 烟囱支架植入、颈总动脉 -LSA 搭桥、LSA 单分支支架保留 LSA。

1.3 术后随访

术后随访,于术后 1、3、6 个月及后期每年来院进行 CTA 检查随访观察。

1.4 统计学方法

采用 SPSS17.0 统计分析,计量资料以($\bar{x}$± s)表示,采用 t 值检验,计数资料以 n%表示,采用 x^2 检验,P<0.05,差异有统计学意义。

2 结果

2.1 手术情况

TEVAR 患者实施急诊手术者 70 例,608 例患者手术均取得成功(100%),术后均未出现左上肢严重缺血。其中未实施 LSA 封堵者 396 例,实施 LSA 封堵者 212 例;实施 LSA 封堵者中部分封堵 60 例,完全封堵且未重建 155 例、LSA 封堵并重建 7 例;7 例 LSA 封堵并重建患者中采用单分支支架保留 LSA 1 例,LSA 烟囱支架植入 5 例,术前行颈总动脉 -LSA 搭桥 1例。

2.2 围手术期并发症及死亡情况

围手术期间由于脑梗死、肺部感染并颅内病变、急性肾衰、慢性肾功能不全并心衰死亡 4 例。术后均未见左上肢严重缺血情况发生。LSA 未封堵与封堵发生术后近期脑梗死、截瘫的概率分别为 (0.5%(2/396)VS 0.4%(1/212))、(0.75%(3/396)VS 0.4%(1/212)),比较差异无统计学意义(P<0.05),详见表 1。本组患者术前即有 4 例患者有截瘫,至出院前下肢肌力已经恢复至 3-4 级,术后出现近期截瘫 4 例,其中 1 例术后第 7 天死亡,其余至出院前,其下肢肌力亦恢复至 3-4 级。

表 1 LSA 未封堵与封堵患者围手术期并发症情况

Table 1 Perioperative complications of between no-closed LSA and closed LSA

Groups	n	Cerebral infarction	Death	Paraplegia
No closed	396	2	2	3
Partial closed	60	0	0	0
Complete closed	155	1	1	0
Complete closure and reconstruction	7	0	1	1

2.3 随访观察

平均随访(30.5± 3.7)个月,共 509 例患者获得随访,其中死亡 53 例,3 例经 CT 检查死因考虑为主动脉夹层 TEVAR 术后出现腹主动脉破裂(分别于术后 25、42、59 月死亡),21 例死亡原因为心梗,6 例由于肺部感染死亡,8 例出现心衰而死亡,6 例由于脑出血而死亡,3 例脑梗,1 例外伤,其余未能明确死因。随访时间内出现远期脑梗 5 例(LSA 未封堵 3 例、封堵 2 例)。随访期间术前及术后截瘫共 8 例,2 例分别于术后第 7 天、1 月死亡,1 例失访,其余患者下肢肌力在随访结束时均逐渐恢复至 4 级及以上,随访远期脑梗患者资料详见表 2。

表 2 随访远期脑梗患者资料

Table 2 The long-term follow-up data of patients with cerebral infarction

Patients	Gender	Age (years)	Blood pressure (mmHg)	History of preoperative cerebral infarction	LSA	Post operative infarction time (month)
1	Male	73	90-110/60-70	No	Closed	20
2	Female	55	110-130/70-80	Yes	No closed	45
3	Male	64	110-130/70-80	Yes	Closed	55
4	Male	70	90-110/60-70	No	No closed	44
5	Female	70	> 130/80	Yes	No closed	60

3 讨论

随着腔内血管修复技术的发展以及支架植入材料的不断完善,腔内修复术(TEVAR)已逐渐取代传统手术,成为近年来临床 Stanford B 夹层的首选治疗方式[9,10]。TEVAR 治疗 TBAD 目的在于封闭 AD 原发破口,增大真腔容积,缩小假腔,从而使患者夹层假腔内压力明显降低,以免其外膜破裂,改善主动脉及分支血供。无论是传统手术或 TEVAR,其治疗均尽可能降低夹层破裂的危险性及由此带来的致死、致残率[11,12]。和传统手术相比,TEVAR 在于覆盖原发裂口,形成假腔内血栓,兼顾保证远端脏器、分支血管的血运情况[13]。

有研究[14]表明,LSA 封堵或者是实施部分封堵比例达 37%,98%为 Z2 区覆盖,由此认为 TEVAR 手术中封堵 LSA 获得充足瞄定区是较为常见。根据 Sherif HM 等[15]国外学者提出,近端破口距 LSA 开口需> 10 mm 才有充足锚定区。原则上讲此情况应在支架血管手术植入前行 LSA 或者是左椎动脉旁路手术。由于椎动脉在生理解剖结构上是 LSA 第一个重要分支,其供应脑后部、延髓以及脑桥血液[16,17]。术中封闭 LSA 开口,但也可导致椎动脉出现急性缺血闭塞,并直接导致其供血部位急性缺血,引发严重临床后果,必须辅助行 LSA 或者是左椎动脉旁路手术,开放椎动脉血流。重建方式有 LSA 烟囱支架、LCCA-LSA 搭桥,术后复查 CTA 显示患者重建血管通畅,达预期目标,无重建血管闭塞,由此可见血管重建是安全有效[18]。

研究[19]发现,LSA 部分或者是完全封堵,但未实施重建的病人会出现左上肢乏力症状,未见严重缺血事件,可见病人左上肢耐受封堵 LSA 良好。这与左上肢侧枝循环丰富,可部分代偿 LSA 封堵造成的短暂动脉血供减少有一定的相关性。国内外研究[20,21]对左上肢可良好的耐受封堵 LSA 认识基本一致。国外有研究[20,21]报道封堵 LSA,患者围手术期的死亡率可有轻微上升。但本研究发现,LSA 未封堵与封堵发生术后近期脑梗死、死亡、截瘫的概率比较差异无统计学意义(P<0.05);LSA 封堵并不使病人死亡风险上升。本研究两例死亡病例均有肾衰的情况,国内外其他研究报道,肾功能不全是 TBAD 围手术其死亡的相关危险因素。3 例术后脑梗病人均否认术前即存在脑梗病史,脑梗分别为术后第 2、5、8 天发生,无术后即刻出现脑梗的病例,同时 2 例脑梗未实施 LSA 封堵,由此可见脑梗发生与 TEVAR 无直接关系。本文术后截瘫 LSA 血流并没有受到影响,术后截瘫与 LSA 封堵无显著相关性。

综上所述,对于 TBAD 患者,TEVAR 术中封闭 LSA 是可行的,不会引起急性后循环缺血,左上肢可很好耐受 LSA 封堵,不会增加术后近远期脑梗死、截瘫等严重并发症的风险。

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