

doi: 10.13241/j.cnki.pmb.2015.02.012

· 临床研究 ·

急诊介入栓塞治疗支气管动脉-肺动脉瘘大咯血的效果*

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摘要 目的: 观察急诊介入栓塞治疗支气管动脉-肺动脉瘘大咯血患者的疗效,分析栓塞剂的选择及合理应用,为临床研究提供参考。**方法:** 30例支气管动脉-肺动脉瘘大咯血患者采用急诊介入造影检查,使用丙烯酸微球和明胶海绵条对出血动脉行急诊栓塞治疗,对动脉造影表现及治疗结果进行回顾性分析。**结果:** 共找到并成功栓塞42支出血的支气管动脉,28支采用单独丙烯酸微球栓塞治疗,14支行丙烯酸微球与明胶海绵条联合栓塞治疗。栓塞术后随访1年,所有患者栓塞术后均无再次咯血及严重并发症出现。**结论:** 急诊动脉栓塞治疗支气管动脉-肺动脉瘘大咯血是一种安全、有效的微创治疗手段。合理的选择和使用栓塞剂是确保栓塞治疗成功的关键。

关键词: 支气管动脉-肺动脉瘘;咯血;血管造影;栓塞

中图分类号: R814.42;R441.7;R605.972 **文献标识码:** A **文章编号:** 1673-6273(2015)02-248-03

Effects of Emergency Transcatheter Arterial Embolisation on Massive Hemoptysis Bronchial by Artery and Pulmonary Fistula*

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ABSTRACT Objective: To observe the clinical effects of emergency transcatheter arterial embolisation (ETA) on the treatment of massive hemoptysis by artery bronchial and pulmonary artery fistula and to analyze the reasonable choice and use of embolic agents so as to provide a reference for clinical treatment. **Methods:** 30 cases of massive hemoptysis by bronchial artery and pulmonary artery fistula who underwent the emergency arteriography were selected and the bleeding bronchial arteries were embolized with gelfoam strips and tricacryl gelatin microsphere (TAGM). Then the arteriography manifestations and therapeutic outcomes were analyzed retrospectively. **Results:** 42 bleeding bronchial arteries were found and then were embolized successfully. 28 were embolized with TAGM and 14 bleeding bronchial arteries were embolized with gelfoam strips and TAGM. In the follow-up, there was no incidence of complications. **Conclusion:** ETA is a safe and effective minimally invasive therapeutic option for the massive hemoptysis by bronchial artery and pulmonary artery fistula, and the reasonable choice to use the embolic agents should be the key factors of ensuring the treatment effects.

Key words: Bronchial artery-pulmonary artery fistula; Hemoptysis; Angiography; Embolism

Chinese Library Classification(CLC): R814.42; R441.7; R605.972 **Document code:** A

Article ID: 1673-6273(2015)02-248-03

前言

大咯血是呼吸系统最常见的急诊之一,窒息时可危及生命。支气管动脉-肺动脉瘘(Bronchial artery - pulmonary artery fistula)是原因不明的大咯血最常见原因之一^[1-3]。文献报道经支气管动脉栓塞治疗肺结核和支气管扩张所致的大咯血均可有较好疗效^[4-7],而有关于急诊介入栓塞(emergency transcatheter arterial embolisation,ETA)治疗支气管动脉-肺动脉瘘大咯血的报道。本文回顾性分析ETA治疗支气管动脉-肺动脉瘘大

咯血患者的30例临床资料,旨在探讨支气管动脉-肺动脉瘘导致大咯血的ETA治疗的疗效及栓塞剂的选择及合理应用。

1 材料与方法

1.1 临床资料

收集2009年10月-2013年5月期间30例因支气管动脉-肺动脉瘘大咯血施行急诊动脉栓塞治疗患者的临床资料,其中男24例,女6例,年龄19~68岁,中位年龄46岁。患者在行ETA治疗前均行实验室检查及肺部CT检查。

* 基金项目:卫生部医药卫生科技发展研究项目(W2009BX094)

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(收稿日期:2014-06-30 接受日期:2014-07-25)

1.2 介入治疗

使用 Siemens 公司平板型 DSA 机。导管为 Terumo 公司的 Cobra 导管及 2.7F SP 微导管, Cook 公司及 Cordis 公司的造影导管(MIK 导管、RH 导管、PIG 导管、VER135° 导管), 栓塞剂为美国 Biosphere Medical 公司生产的丙烯酸微球(tricacryl gelatin microsphere, TAGM) 和广州凯康公司生产的明胶海绵。

患者平卧于手术台上, 保持呼吸道畅通, 密切观察患者的病情变化。消毒后铺手术单, 局麻右侧腹股沟穿刺点附近后, 穿刺右侧股动脉, 置入动脉鞘。先行胸主动脉造影, 显示支气管动脉开口, 再根据支气管动脉走行选用相应的导管行支气管动脉造影, 判断有无脊髓动脉分支。如发现病变有脊髓动脉分支, 可采用微导管超越脊髓动脉的开口并超选择至支气管动脉远端, 选择丙烯酸微球联合海绵条或单独使用丙烯酸微球对病变动脉行栓塞治疗, 直至病变动脉血流停滞。复查造影确认病变支

气管动脉是否栓塞良好。

2 结果

30 例患者中, 肺结核合并支气管动脉-肺动脉瘘患者 15 例, 原发性支气管动脉-肺动脉瘘患者 10 例, 支气管扩张合并支气管动脉-肺动脉瘘患者 5 例。介入造影检查时共找到 42 支出血的支气管动脉, 28 支采用单独丙烯酸微球治疗, 14 支支气管动脉行丙烯酸微球与明胶海绵条联合栓塞治疗。造影主要表现为病变的支气管动脉主干增粗, 病变的支气管动脉与临近的肺动脉分支异常交通, 可见到对比剂的外溢, 部分肺动脉及肺实质可显影(图 1、图 2)。所有患者术后 48 小时内咯血完全停止。3 例患者在栓塞后行外科手术切除原发病灶治疗。术后随访 1 年证实, 30 例患者在 ETAE 术后均无再次咯血及异位栓塞等严重并发症。

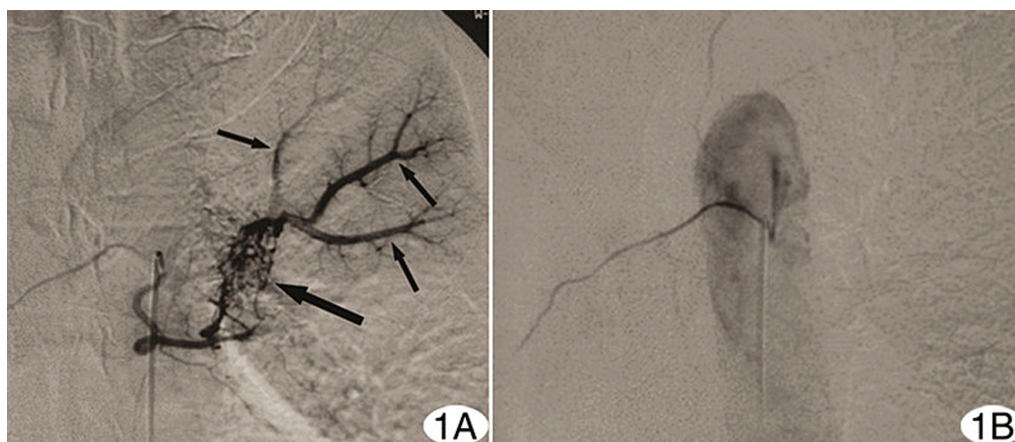


图 1 女患, 46 岁, 结核性胸膜炎病史 20 年

Fig. 1 A 46-year-old female patient with 20-year tuberculous pleurisy

A: 支气管动脉造影: 支气管动脉明显增粗, 通过畸形血管团(长箭头)与左肺动脉分支(短箭头)相通, 远端部分肺实质显影。B: 丙烯酸微球联合明胶海绵栓塞后造影: 左侧支气管动脉栓塞良好。

A: Angiogram of bronchial artery: Bronchial arteries were thickened. Left bronchial artery communicated with the branch of left pulmonary artery(short arrow) via abnormal arterial anastomosis (long arrow), and parts of lung parenchyma developed. B: Angiogram of left bronchial artery after embolotherapy with gelfoam strips and TAGM: The left bronchial artery were embolized completely.

3 讨论

生理情况下, 支气管动脉压力远高于肺动脉压, 在形成异常交通时, 血液由高压的支气管动脉流向低压的肺动脉^[8-11]。支气管动脉-肺动脉瘘患者发生大咯血时, 内科治疗常难以奏效^[12,13]。

ETAE 治疗时常用的栓塞剂为聚乙烯醇(Polyvinyl alcohol, PVA)颗粒、明胶海绵和弹簧圈^[14,15]。随着科技的不断进步, 新型栓塞剂不断涌现。丙烯酸微球是最近出现的一种新型栓塞剂, 具有非聚积性的特点, 亲水性的表面可防止其在导管腔内发生积聚, 具有均匀一致的球状外形和出色的弹性, 可以顺利通过微导管, 输送到靶血管后可恢复至固有直径, 栓塞部位确切。与 PVA 颗粒比较, 丙烯酸微球在栓塞子宫动脉时既可以达到确切的栓塞效果, 又可以降低栓塞剂堵塞导管和出现异位栓塞的风险^[16-18]。因此, 应根据急诊支气管动脉造影表现和出血动脉的管径大小, 选用明胶海绵和丙烯酸微球进行栓塞治疗。本组中,

丙烯酸微球是最常被使用的栓塞剂。采用不同大小的丙烯酸微球对支气管动脉及其分支进行全面的栓塞治疗, 止血效果确切且术后未出现严重并发症。明胶海绵为中效栓塞材料, 止血不彻底且极易复发^[19,20], 不建议单独使用。对于出血动脉主干较粗的对比剂外溢患者, 建议使用明胶海绵条与丙烯酸微球进行联合栓塞治疗。弹簧圈是一种长效栓塞材料, 主要用于病变血管主干的栓塞治疗。使用弹簧圈时, 不能彻底栓塞支气管动脉-肺动脉瘘病变区畸形血管团, 栓塞效果差, 栓塞术后容易出现复发咯血。在弹簧圈释放时, 如导管前端固定不牢或者弹簧圈尺寸选择不合适, 可造成严重的异位栓塞。因此在支气管动脉-肺动脉瘘栓塞治疗时不建议使用弹簧圈。

为了根治大咯血, 支气管动脉-肺动脉瘘大咯血的患者在进行 ETAE 治疗成功止血后, 要联合内外科治疗原发病, 如抗炎、抗真菌及抗结核等治疗。必要时可请胸外科医生会诊, 征求患者同意后采用外科手术切除患侧肺叶等治疗^[21,22]。以上措施可



图2 男患, 54岁, 肺结核病史25年

Fig. 2 A 54-year-old male patient with 25-year tuberculous

A, B: 肺部 CT: 左肺下叶支气管扩张合并感染, 霉菌球(箭头)显影。C: 右支气管动脉造影: 右侧支气管动脉迂曲增粗、分支异常增多(短箭头), 远端与左下肺动脉交通(长箭头)。D: 右支气管动脉造影: 左下肺动脉分支(箭头)显影。E: 丙烯酸微球栓塞后造影: 双侧支气管动脉栓塞良好。
A, B: Lung CT: Obvious bronchiectasis and infections and lung mold ball (arrow) at the lower lobes of left lung. C: Angiogram of right bronchial artery: The enlarged and numerous branches (short arrow) of right bronchial arteries developed, and which communicated with the branch of left bronchial artery (long arrow). D: Angiogram of right bronchial artery: Branches of the left lower pulmonary artery (short arrow) developed. E: Angiogram after embolotherapy with TAGM: The bilateral abnormal bronchial arteries were embolized completely.

以降低复发咯血的风险, 并有利于提高支气管动脉-肺动脉瘘大咯血的治愈率。

综上所述, TAE 是治疗支气管动脉-肺动脉瘘大咯血的一种快速、有效的微创治疗手段, 合理的选择和使用栓塞剂是确保栓塞治疗成功的关键。积极地内、外科治疗有利于提高治愈率和降低复发率。

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