在 DNA 损伤的早期,ATM 的磷酸化启动了包括 CHK1、P53、P21 等信号转导的级联反应从而决定了细胞生物学行为及命运[9-13]。XPC 影响 p-ATM 向损伤 DNA 的募集提示 XPC 在 DNA 损伤应答中可能还会有新功能,本研究未就 XPC 与 ATM 之间如何相互作用的分子机制深入探索,且只采用了紫外线损伤较为单一的损伤形式。最近,本课题组已展开顺铂损伤下的相关研究,相信通过更多的努力能帮助人们更好地理解 XPC 在损伤应答及修复中的新作用新角色。

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个案与短篇

104 例 Achillon 微创跟腱吻合器治疗急性跟腱断裂的疗效观察

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[**关键词**] 跟腱断裂;微创;跟腱吻合器
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急性跟腱断裂是临床上常见的急性损伤,跟腱的血供较少,愈合困难,术后并发症较多[1]。目前常规治疗采用广泛切开手术使跟腱断端充分对合,但术后常出现伤口皮肤坏死感染,跟腱愈合差等问题[2]。西南医院创伤急救中心从 2006-2012 年共收治急性跟腱断裂 104 例,采用 Achillon 微创缝合的方法行一期微创手术吻合,取得较好的疗效,现报告如下。

1 资料与方法

1.1 临床资料

本组闭合性跟腱断裂 56 例,其中男 33 例,女 23 例;左侧 25 例,右侧 31 例;平均年龄 29.3(19~55)岁;间接暴力损伤 43 例,直接暴力损伤 11 例,不明原因损伤 2 例。开放性跟腱断裂 48 例,其中男 30 例,女 18 例,左侧 22 例,右侧 26 例;平均年龄 32.5(21~66)岁;玻璃割伤 21 例,瓷片割伤 15 例,电锯割伤 8 例,刀砍伤 4 例;完全断裂 42 例,不完全断裂(大于 1/3)6 例。断裂部位:断端距跟骨结节 3 cm 以上,所有病例断裂部位均位于腱、肌腹交界部以远,从受伤到就诊的时间为 0.5~16 h,均在入院后 1 h 内行手术。

1.2 手术方法及术后处理

对于闭合性跟腱断裂患者,根据术前 MR 确定手术切口,切口位于断裂处内侧,打开跟腱腱鞘后不游离跟腱腱鞘,清理断端血肿。按照前期报道的方式进行吻合操作[3]。对于开放性跟腱断裂患者,首先进行彻底清创,注意保护周围组织,不做过多剥离,适当行锐性修整,不过多切除。同上法行吻合手术。

术后切口无引流,踝关节跖屈 30°石膏外固定 1 周后换为管型石膏,跟腱处开窗换药。术后 6 周拆除石膏后部分负重活

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动。12周开始正常负重行走[4]。半年内佩带护踝，并限制患者参加体育活动。

2 结果

急性闭合性跟腱断裂组与开放性跟腱断裂组间年龄、性别构成比无显著差异。104例（闭合性56例，开放性48例）获得随访，平均12.2（8～18）个月。按Arner-Lindholm疗效评定标准[5]，闭合性跟腱断裂组：优53例（94.6%），良3例（5.4%）；开放性跟腱断裂组：优44例（91.7%），良4例（8.3%）；无伤口感染、跟腱愈合不良、腓肠神经损伤、复发跟腱断裂或缝线排异。

3 讨论

急性跟腱断裂是常见的运动系统损伤。目前的治疗倾向于手术治疗[6]。但是传统开放手术暴露范围广、术中创伤过大，导致术后感染、跟腱延迟愈合、粘连加重等并发症；经皮跟腱吻合技术虽然可以减少软组织损伤，但增加了局部感染以及腓肠神经损伤的可能[7-8]。2002年Assal等[3]结合开放手术与经皮技术的优势发明了Achillon微创跟腱吻合器械。Huffard等[9]通过尸体手术证实，Achillon微创跟腱吻合较Krackow吻合可使修复后跟腱获得更高的抗张强度。

本组104例患者取得了良好的疗效，在严格掌握开放性跟腱断裂一期手术吻合指征的情况下，该方法对开放性跟腱断裂同样可以取得非常良好的疗效，无伤口感染、跟腱愈合不良、腓肠神经损伤、复发跟腱断裂或缝线排异。在手术过程中，我们通过以下方法来完成精确对合：①确保缝线与跟腱纵轴垂直，防止缝合后跟腱扭曲及偏移发生；②防止矢状位缝合偏心；③最远端穿线孔距跟腱断端距离大于1 cm即可；④注意防止跟腱之间缝隙过宽或过紧。

Achillon跟腱吻合器辅助跟腱吻合手术切口小，可利用开放性损伤的创口进行手术操作，最大限度保护了跟腱的血供；减少了腓肠神经损伤的可能；缝线不外露，减少了术后感染的发生。因此，该技术对于跟腱断裂是一种理想的早期吻合手段。

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