关节镜下带线锚钉修复髋臼盂唇损伤的临床疗效

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摘要 为研究关节镜下带线锚钉缝合修复髋臼盂唇损伤的临床疗效,分析了2012年1月至2017年1月因单纯髋臼盂唇损伤接受关节镜下带线锚钉缝合修复治疗患者的临床资料。手术前后分别对患者体征、疼痛程度、髋关节功能及软骨退变程度进行评价。共获得完整临床资料42份,平均年龄29岁,平均随访时间31个月。患者VAS疼痛评分由术前4.5±0.92降至术后1.6±1.2,髋关节Harris评分由术前56.95±10.6提高至术后95.95±5.4,术后39例Harris评分超过90分,优良率92.8%。术后VAS评分及Harris评分和术前对比差异有统计学意义($P<0.001$)。患者术后软骨状况和术前对比差异无统计学意义($P=0.083$)。证实髋关节镜下带线锚钉髋臼盂唇缝合修复术效果优良,对于髋臼盂唇损伤具有重要治疗价值。

关键词 关节镜;髋臼盂唇损伤;临床疗效

髋臼盂唇(acetabular labral)是附着于髋臼边缘的纤维软骨结构,在髋臼切迹处与髋臼横韧带相连,并与之形成一完整的环状结构。盂唇在关节囊侧直接附着于骨性髋臼,并与关节囊之间存在一狭窄的滑膜陷窝(盂唇旁沟)。盂唇在关节软骨侧通过钙化层间接附着在骨性髋臼上,并与髋臼月状软骨相延续,在交界部位存在1~2 mm的移行区[1]。盂唇在横断面上呈类三角形,同时可存在其他变异,如圆形、不规则形状、扁平或者缺失等[2]。

髋臼盂唇是增强髋关节稳定性的重要组成结构,能够显著增加髋臼的表面积和体积。研究发现,髋臼盂唇的存在使髋臼的接触面积由28.8 cm^2增加到36.8 cm^2,使髋臼的容积由31.5 cm^3增加到41.1 cm^3[2-3]。髋臼盂唇通过"密封"关节腔辅助维持股骨头于球窝内,从而维持髋关节在过度运动中的稳定性[4]。此外,髋臼盂唇作为次级稳定结构在髋关节外旋和前向运动中起重要作用[5]。同时,髋臼盂唇还可通过"密封"作用将关节液保留在关节

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腔内[6]。关节液一方面能够滋养关节软骨以维持其正常的新陈代谢,另一方面通过液压传导的方式将作用于髋臼的部分负荷传递至股骨头,避免股骨头和髋臼的直接接触,减小了关节应力[7]。

髋臼盂唇损伤(acetabular labral tear)是引起髋关节慢性疼痛及活动受限的常见原因,保守治疗往往效果不佳,手术治疗的方式选择及技术是运动医学和髋关节外科领域重要课题之一。髋关节镜下治疗髋臼盂唇损伤具有微创、并发症少、疗效可靠等特点。本研究将一组因单纯髋臼盂唇损伤行关节镜下缝合修复治疗的临床资料进行分析,旨在探讨髋关节镜下带线锚钉缝合修复髋臼盂唇损伤的临床疗效。

1　临床资料

1.1　患者选择

诊断标准:诊断标准参考第12版《坎贝尔骨科手术学》之运动医学与关节镜卷。包括(1)腹股沟区疼痛伴髋关节功能障碍,可有体位性症状加重。(2)可伴有外伤史或运动损伤史。(3)“4”字征(+),McCarthey试验(+)。(4)磁共振检查盂唇自关节附着区分离或盂唇实质内存在多平面撕裂。须至少同时满足(1)、(3)、(4)。

纳入标准:(1)年龄18~40岁。(2)临床资料完整有效。(3)单纯髋臼盂唇损伤患者,不伴有先天性髋臼盂唇发育不良及股骨头坏死等疾病。(4)关节软骨退变Recht分级小于I级。

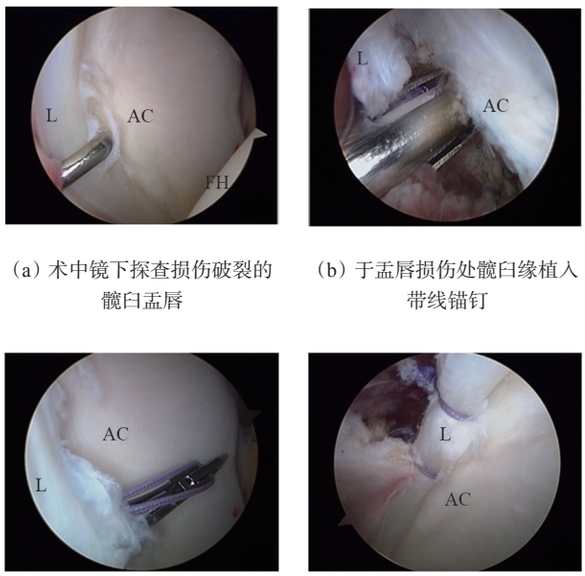
手术指征:(1)髋关节疼痛伴活动受限影响日常生活及工作。(2)体格检查及影像学检查提示髋臼盂唇损伤。(3)经过3个月以上正规保守治疗症状无明显缓解。

1.2　基本资料

对2012年1月至2017年1月因单纯髋臼盂唇损伤于中国中医科学院望京医院接受关节镜下缝合修复治疗并获得随访的患者的临床资料进行分析,截至随访结束共有42例患者符合纳入标准,其中左髋17例,右髋25例,共42髋。男性12例,女性30例。运动损伤患者26例和生活损伤患者16例。

1.3　手术方法及术后康复

手术方法:所有手术均由同一名高年资医师完成,手术均采用全身麻醉或连续硬膜外麻醉。患者仰卧位,患侧髋关节牵引架牵引伸直,外展10°,C型臂透视辅助下行关节穿刺,生理盐水扩张关节囊,分别建立前侧、前外侧和后外侧入路。本组42例盂唇损伤均采用带线锚钉缝合修复,术中关节镜下检查所见,髋臼盂唇损伤形态均为基地部纵形撕裂,裂隙长度6~15 mm。撕裂发生在前盂唇27例,上盂唇15例。锚钉间距为5~8 mm,根据损伤范围置入1~3颗带线锚钉,手术过程如图1所示。



(a)术中镜下探查损伤破裂的髋臼盂唇　(b)于盂唇损伤处髋臼缘植入带线锚钉

(c)锚钉缝线于基底部穿过损伤盂唇　(d)缝线打结修复后的髋臼盂唇

注:AC:髋臼(acetabulum);FH:股骨头(femoral head);L:盂唇(labrum)

图1　关节镜下带线锚钉缝合修复髋臼盂唇

术后康复:术后3周内患者避免负重运动,康复训练以加强肌肉力量为主。3周后指导患者开始部分负重运动,并逐渐增加负重至完全负重。术后3个月内恢复日常活动。术后6个月开始进行体育运动。

1.4　疗效评价指标

疗效评价指标包括物理检查和髋关节功能评分量表。采用“4”字征和McCarthey试验评价患者

体征。视觉模拟评分法(visual analog scale,VAS)评价手术前后疼痛程度。Harris(harris hip scores)评分评价手术前后患者髋关节功能。Recht MRI分级评价软骨退变程度。

1.5 统计学处理

数据处理采用SPSS 25.0软件。计量资料以均值±标准差$(\bar{x}\pm s)$表示,手术前后对比用配对样本t检验;计数资料用百分比表示,手术前后对比用χ^2检验;等级资料对比用Wilcoxon秩和检验。

2 结果

单纯髋臼盂唇损伤的42例患者平均年龄29岁(26~35岁),平均随访时间31个月(12~60个月)。术后物理检查"4"字征及McCarthey试验改善率大于90%,患者术前和术后体征对比差异有统计学意义($P<0.001$)(表1)。患者VAS疼痛评分由术前4.5±0.92降至术后1.6±1.2,髋关节Harris评分由术前56.95±10.6提高至术后95.95±5.4,术后39例Harris评分超过90分,优良率92.8%。患者术后VAS评分及Harris评分和术前对比差异有统计学意义($P<0.001$)。术后1例患者发生明显的软骨退变,患者术后软骨状况和术前对比差异无统计学意义(P=0.083)(表2)。

表1 术前和术后物理检查结果对比

	"4"字征		McCarthey试验	
	−	+	−	+
术前	0	100%	0	100%
术后	93%	7%	98%	2%
统计值	χ^2=72.8 $P<0.001$		χ^2=80.093 $P<0.001$	

表2 术前和术后功能评分和软骨退变情况对比

	VAS评分	Harris评分	Recht分级		
			0	I	≥II
术前	4.5±0.92	56.95±10.6	30	12	0
术后	1.6±1.2	95.95±5.4	28	13	1
统计值	t=13.869 $P<0.001$	t=-20.006 $P<0.001$	Z=-1.732 P=0.083		

3 讨论

在目前国内外研究中,多数学者认为髋臼盂唇损伤继发于髋臼盂唇撞击综合征(femoracetabular impingement,FAI),但本组病例均无髋臼发育不良及髋关节撞击等因素存在。提示在临床工作中对于有髋部外伤史或舞蹈、瑜伽等髋关节极度屈伸运动的患者,出现持续的髋关节疼痛及旋转、屈伸活动受限,首先要考虑髋臼盂唇损伤这一问题。另外,我们研究发现单纯髋臼盂唇损伤多见于年轻患者,且女性患者的发病人数显著高于男性,本组病例女性患者约为男性患者2.5倍。这与国外一项有关髋臼盂唇损伤和性别关系的研究结果相符,该研究还指出女性独特的骨性结构和关节松弛等原因可能是造成术后功能改善不理想的危险因素[8]。

近年来,国内外许多研究证实关节镜下髋关节盂唇修复手术总体疗效满意。Kamath等[9]评估52例平均年龄42岁关节镜下盂唇修复的患者,84%的患者能重新恢复运动或恢复手术前的体育运动,髋关节镜手术对大多数盂唇损伤患者安全、可靠。本研究结果发现本组患者髋部疼痛及关节功能均较术前明显改善,平均31个月的随访中,仅1例患者术后出现关节软骨退变,分析原因可能与该患者病程较长有关。国际上诸多的研究均证实关节镜下髋臼盂唇缝合修复术可明显改善患者症状和延缓骨关节炎的进展[10-15]。

关节镜下锚钉置入为该手术的关键步骤,由于髋臼盂唇在关节囊侧直接附着于骨性髋臼,在关节软骨侧通过钙化层间接附着在骨性髋臼上,并与髋臼月状软骨相延续这一解剖特点,锚钉一般选择关节囊侧止点的边缘置入,角度过大可能穿透关节软骨进入关节腔并造成关节内医源性撞击等问题,而角度过小锚钉可能穿出髋臼骨皮质而降低把持力甚至导致锚钉失效[16]。Hernandez等[17]通过一项尸体标本的生物力学研究证实,以髋臼前后缘关节囊止点连线做垂线,以此垂线为基准,尾端外偏10°做为锚钉最佳置入角度,同时锚钉置入安全范围为-7.2°~20.4°。缝线穿过盂唇主要有褥式缝合和环抱缝合两种方式,研究表明二者在固定强度及愈

合方面无明显优劣性,但环抱方式因其操作简单同时穿线过程对盂唇损伤更小而更为广泛使用[17-20],本研究全部采取环抱缝合的方式。

4 结论

髋关节镜下带线锚钉髋臼盂唇缝合修复术效果优良,对于髋臼盂唇损伤具有重要诊断及治疗价值,应尽早手术恢复髋臼盂唇的解剖功能,且手术不会增加罹患骨关节炎的风险。

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Clinical outcomes of arthroscopic repair of acetabular labrum with suture anchor: A retrospective study

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Abstract This paper is a retrospective study of the clinical outcomes of the arthroscopic acetabular labral repair with suture anchor. The clinical data of patients of the arthroscopic repair with wire anchors due to the acetabular labrum tears from January 2012 to January 2017 are retrospectively analyzed. Before and after the surgery, the patients are evaluated for the physical signs, the pain, the hip function and the degree of cartilage degeneration, with a total of 42 sets of complete clinical data, of an average age of 29 years and an average follow-up time of 31 months. The VAS and Harris scores are improved from the preoperative 4.5±0.92 to 1.6±1.2 and from 56.95±10.6 to 95.95±5.4, respectively. And the Harris score is greater than 90 points in 39 cases, with an excellent rate of 92.8%. The difference between the preoperative and postoperative VAS and Harris scores is statistically significant(P<0.001). However, there is no significant difference between the postoperative and preoperative cartilage degeneration (P=0.083). It is shown that the acetabular labrum arthroscopic repair with suture anchor is effective and has a critical therapeutic value for the acetabular labrum injury.

Keywords arthroscopy; acetabular labrum tears; clinical outcomes

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