·经验交流·

关节镜下清除并钢丝引导缝合治疗膝关节外侧半月板囊肿

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【摘要】 **目的**：探讨关节镜下清除并钢丝引导缝合治疗膝关节外侧半月板囊肿的临床疗效。**方法**：2014 年 7 月至 2017 年 12 月，采用关节镜下清除并钢丝引导缝合治疗膝关节外侧半月板囊肿 33 例，其中男 13 例，女 20 例，年龄 20~55（36.23±2.30）岁；病程 3~14（4.60±0.83）个月；术前 MRI 检查均诊断明确。关节镜下按囊肿具体部位分前角 14 例，体部 18 例，后角 1 例。所有囊肿为单发，其中 3 例为多房。术前及术后 6 个月采用 Lysholm 膝关节功能评分、GLASOW 评分进行临床疗效。**结果**：术后 33 例均获得随访，时间 6~24（7.5±1.2）个月。患者术前症状消失或明显减轻，切口均甲级愈合，无伤口感染、神经血管损伤等并发症。MRI 示半月板撕裂部及囊肿缺损区已愈合，囊肿无复发。伤口愈合时间 8~12（9.6±1.6）周，恢复日常生活及运动。术后 6 个月 Lysholm 评分（91.32±3.36）分，与术前（61.12±4.35）分比较差异有统计学意义（t=46.11，P<0.01）。根据 GLASOW 评分，优 31 例，良 2 例。**结论**：采用关节镜下清除并钢丝引导缝合治疗膝关节外侧半月板囊肿，最大程度地保留了半月板，并同时行半月板损伤修复，术后膝关节功能恢复好，值得临床推广应用。

【关键词】 半月板；　囊肿；　膝关节；　关节镜
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Arthroscopic cyst removal and wire-guided suture for the treatment of lateral meniscal cyst of knee joint　*DAI Peng-yi, TAN Hong-lue, YUAN Yan-hao, and LI Xiao-yong. Department of Knee Injury, Luoyang Orthopaedic Hospital of Henan Province, Luoyang* 471002, *Henan, China*

ABSTRACT　**Objective**: To explore clinical effect of arthroscopic cyst removal and wire-guided suture for the treatment of lateral meniscal cyst of knee joint. **Methods**: From July 2014 to December 2017, 33 patients with lateral meniscal cyst of knee joint were treated by arthroscopic cysts removal and wire-guided suture, including 13 males and 20 females, aged from 20 to 55 years old with an average age of (36.23 ±2.30) years old, the courses of disease ranged from 3 to 14 months with an average of (4.60±0.83) months; Preoperative MRI examination was clear diagnosed. There were 14 cysts on anterior horn, 18 cysts on meniscal body and 1 cyst on posterior horn; all cysts were solitary, and 3 of them were multilocular. Lysholm score and GLASOW score of knee joint function and clinical efficacy were observed before and after operation at 6 months. **Results**: All patients were followed up form 6 to 24 months with an average of (7.5±1.2) months. Preoperative symptoms disappeared or significantly alleviated, and all incisions were healed by intention without complication and neurovascular injury. MRI showed meniscal tear areas and cystic defective areas healed, cyst was not recurrenced, healing time ranged form 8 to 12 weeks with an average of (9.6±1.6) weeks, and patients recovered their daily life and exercise. There was significant difference in Lysholm score before operation (61.12±4.35) and after operation at 6 momths (91.32±3.36) (t=46.11, P<0.01); according to GLASOW assessment, 31 patients with excellent recovery, and 2 good. **Conclusion**: Arthroscopic cyst removal and wire-guided suture for the treatment of lateral meniscal cyst of knee joint could reserve meniscus, repair injury of meniscus, recover knee joint function after operation, and is worth popularizing.

KEYWORDS　Meniscus;　Cysts;　Knee joint;　Arthroscopy
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半月板囊肿是由于多种原因致使关节液在半月板包膜下或半月板内异常蓄积所形成的囊性病变[1]，其临床症状没有特异性，主要表现为膝关节慢性疼痛及局部肿物，伴有膝关节弹响、绞索等症状[2]。传统治疗多采用囊肿与半月板完全切除，手术创伤大，近期效果可，但由于半月板切除，后期关节不稳，膝关节退变等远期并发症较多[3]。自 2014 年 7 月至 2017 年 12 月，笔者采用关节镜下清除并钢丝引导缝合治疗膝关节外侧半月板囊肿 33 例，临床

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疗效满意，现报告如下。

1　临床资料

本组 33 例，其中男 13 例，女 20 例，年龄 20~55(36.23±2.30)岁；左膝 19 例，右膝 14 例；所有患者术前诉有疼痛、膝前或外侧关节间隙包块，膝关节间隙压痛、内旋环转试验均阳性，可在膝表触及包块；有外伤史 27 例，无明显外伤史 6 例；所有患者伴不同程度关节肿胀及股四头肌萎缩。术前均行 MRI 检查，关节镜下进一步证实半月板损伤类型及囊肿部位，均为外侧半月板囊肿，其中半月板水平状撕裂 31 例(盘状半月板并水平状撕裂 6 例)，半月板无明显损伤 2 例；前角 14 例，体部 18 例，后角 1 例，排除无症状半月板囊肿、交叉韧带损伤、膝关节周围骨折等其他关节疾病。所有囊肿为单发，其中 3 例为多房，均位于半月板外缘与关节囊之间。囊肿内淡红色黏稠液 30 例，淡黄色黏稠液 3 例。病程 3~14 (4.60±0.83)个月。

2　治疗方法

2.1　手术方法

患者取仰卧位，腰硬联合加基础麻醉生效后，患肢大腿上段上气囊止血带，术区常规消毒铺无菌巾，驱血带驱血，充气，在压力控制下手术。常规取膝关节前内、外侧标准入路插入关节镜，手术切口长 5~8 mm，常规检查关节腔，用探针先检查囊肿部位、形态，再检查半月板损伤情况。明确损伤半月板与囊肿相通部，镜下确定囊肿位置，蓝钳修整半月板撕裂部，刨刀及半月板挫打磨半月板撕裂部成新鲜创面，以利于愈合。用刨刀刨开囊肿并彻底刨除囊壁，以防囊肿复发，但形成了缺损区。定位缝合位置，对应皮肤切口长 2~3 mm，用直径 1.6 mm 腰穿套管针由外向内刺入关节腔并贯穿缺损区及半月板损伤部，将 1 根直径 0.5 mm 的钢丝对折穿入套管针以引导 PDS 线，根据半月板损伤部及缺损区大小进行垂直缝合，缝合针距 5 mm。将线穿过半月板上下表面后引出，封闭缺损区。在关节囊外拉紧打结固定，剪断线尾，探针探查缝合的半月板稳固、缺损区消除。核对医用物品无误，全层缝合诸切口，无菌纱布覆盖，弹力绷带包扎，放松止血带，检查患肢末梢血液循环良好。

2.2　术后处理

患肢佩戴卡盘式膝铰链支具，局部冷敷以消肿，止痛治疗，行踝关节主动伸屈训练、股四头肌等长收缩训练，直腿抬高训练，以避免肌肉萎缩及局部粘连。患肢在支具保护下扶双拐下地不负重行走，术后 2 周控制膝关节屈伸活动度为 0°~60°；术后 4 周控制膝关节屈伸活动度为 0°~90°，在支具保护下扶双拐开始部分负重行走。术后 4 周内膝关节主动屈膝每日 3 次，余时间伸膝位支具固定并行直腿抬高锻炼，预防过多锻炼致缝合半月板再次撕裂。术后 8 周控制膝关节屈伸活动度为 0°~130°，弃拐并在支具保护下完全负重行走，术后 3 个月去除支具开始膝关节正常活动。

3　结果

术后 33 例获得随访，时间 6~24 (7.5±1.2)个月。术前临床症状消失或明显减轻，切口甲级愈合，无伤口感染、神经血管损伤等并发症发生。MRI 示半月板撕裂部及囊肿缺损区已愈合，囊肿无复发。伤口愈合时间 8~12 (9.6±1.6)周，恢复日常生活及运动。术后 6 个月 Lysholm[4]评分(91.32±3.36)分与术前(61.12±4.35)分比较差异有统计学意义(t=46.11，P<0.01)(见表 1)。根据 GLASOW 评分[5]：优，未见囊肿复发，本组 31 例；良，囊肿部位残留轻微疼痛，本组 2 例；一般：患膝轻微疼痛伴囊肿复发；差：无论囊肿复发与否，患膝疼痛严重。典型病例见图 1–2。

4　讨论

半月板囊肿在膝关节疾病中发病率低[6]，本组病例均为外侧半月板囊肿，其中多数有外伤史，少数无明显外伤史，绝大多数伴有半月板水平撕裂[7]。撕裂口形成活瓣机制，半月板内出血以及关节腔内的关节滑液异常蓄积在半月板旁包膜下而形成囊肿[8]，多位于前角和体部[9]，致使膝关节伸屈时出现疼痛、弹响、交锁等症状[2]。

对于伴有症状的半月板囊肿者，应早期进行囊肿清除并行损伤半月板修复治疗，以消除症状，尽可能多地保留半月板，稳定关节，延缓膝关节退变，降

表 1　膝关节外侧半月板囊肿 33 例术前与术后 6 个月 Lysholm 评分比较($\bar{x}\pm s$，分)

Tab.1　Comparison of Lysholm scores in 33 patients with lateral meniscal cyst of knee joint before preoperation and after operation at 6 months($\bar{x}\pm s$, score)

时间	疼痛	肿胀	跛行	交锁	关节不稳	支撑	爬楼梯	下蹲	总分
术前	16.30±1.13	5.16±0.31	3.01±0.65	10.76±1.25	18.92±1.23	2.35±0.71	4.27±0.55	1.61±0.59	61.12±4.35
术后 6 个月	23.81±0.71	8.12±0.32	4.96±0.58	14.17±0.83	22.83±0.91	4.68±0.45	7.65±0.38	4.56±0.60	91.32±3.36
t 值	20.12	68.38	17.01	12.63	18.62	16.86	14.68	15.26	46.11
P 值	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

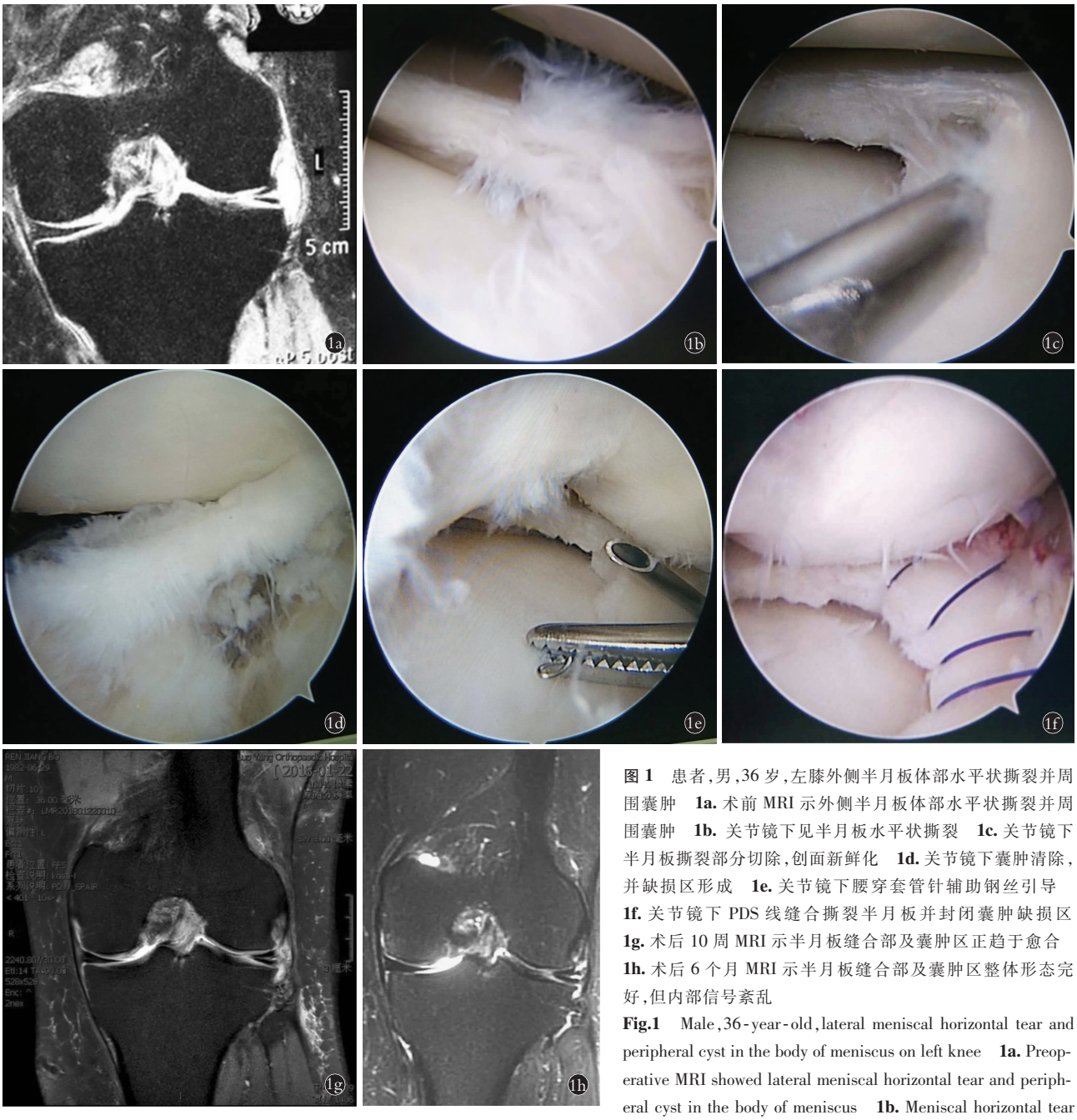

图 1　患者，男，36 岁，左膝外侧半月板体部水平状撕裂并周围囊肿　**1a.** 术前 MRI 示外侧半月板体部水平状撕裂并周围囊肿　**1b.** 关节镜下见半月板水平状撕裂　**1c.** 关节镜下半月板撕裂部分切除，创面新鲜化　**1d.** 关节镜下囊肿清除，并缺损区形成　**1e.** 关节镜下腰穿套管针辅助钢丝引导　**1f.** 关节镜下 PDS 线缝合撕裂半月板并封闭囊肿缺损区　**1g.** 术后 10 周 MRI 示半月板缝合部及囊肿区正趋于愈合　**1h.** 术后 6 个月 MRI 示半月板缝合部及囊肿区整体形态完好，但内部信号紊乱

Fig.1　Male, 36-year-old, lateral meniscal horizontal tear and peripheral cyst in the body of meniscus on left knee　**1a.** Preoperative MRI showed lateral meniscal horizontal tear and peripheral cyst in the body of meniscus　**1b.** Meniscal horizontal tear under arthroscopic　**1c.** Partial excision and fresh wound of meniscal tear under arthroscopic　**1d.** Cysts was removed and defective area was formed under arthroscopic　**1e.** Wire was guided by waist needle under arthroscopic　**1f.** Meniscal horizontal tear and defective area were sutured by PDS wire under arthroscopic　**1g.** Postoperative MRI at 10 weeks showed sutured meniscal and cystic defective area healed　**1h.** Postoperative MRI at 6 months showed meniscus and cystic defective area were intact, but the internal signal was disordered

低骨性关节炎发生率[10-11]。传统手术方式为开放手术切除囊肿和关节镜下囊肿引流，同时将半月板部分或全部切除[12]。前者切口大，半月板保留少或无保留，创伤大；后者囊肿复发率高，半月板缝合需要专业缝合器械，缝合范围局限，且费用高[13]。本组病例采用膝关节镜下彻底清除囊肿壁、腰穿针套管辅助钢丝引导缝合半月板损伤撕裂部及囊肿缺损区，具有以下优点：(1)手术切口小，囊肿清除彻底，囊肿缺损区完全封闭，避免囊肿复发[14]。(2)可缝合半月板全部区域，最大程度保留了半月板，创伤小。(3)操作方便、简单，便于无专业缝合器械的医院开展半月板缝合，且缝合费用低。本方法的手术指征：(1)有症状的半月板囊肿。(2)半月板前后根、前后角、腘肌腱裂孔附近的撕裂，半月板红区、红白交界部撕裂>1 cm[15-16]。(3)囊肿缺损区在无张力状态下能被闭合的，须注意以下问题：①要熟练掌握关节镜操作，避

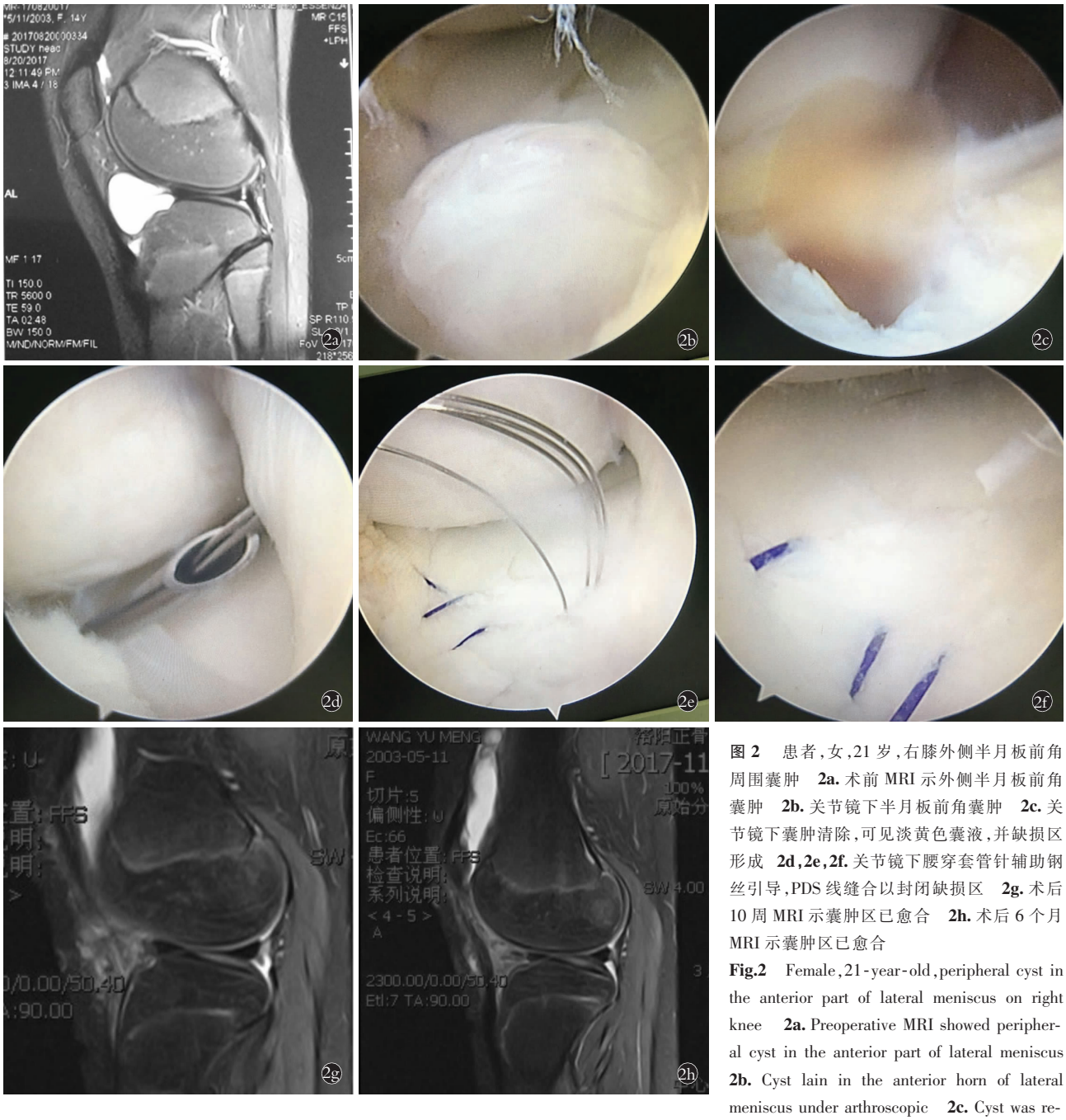

图 2　患者，女，21 岁，右膝外侧半月板前角周围囊肿　**2a.** 术前 MRI 示外侧半月板前角囊肿　**2b.** 关节镜下半月板前角囊肿　**2c.** 关节镜下囊肿清除，可见淡黄色囊液，并缺损区形成　**2d，2e，2f.** 关节镜下腰穿套管针辅助钢丝引导，PDS 线缝合以封闭缺损区　**2g.** 术后 10 周 MRI 示囊肿区已愈合　**2h.** 术后 6 个月 MRI 示囊肿区已愈合

Fig.2　Female, 21-year-old, peripheral cyst in the anterior part of lateral meniscus on right knee　**2a.** Preoperative MRI showed peripheral cyst in the anterior part of lateral meniscus　**2b.** Cyst lain in the anterior horn of lateral meniscus under arthroscopic　**2c.** Cyst was removed under arthroscopic, pale yellow capsule liquid was seen, and defective area was formed　**2d, 2e, 2f.** Wire was guided by waist needle and defective area was sutured by PDS wire under arthroscopic　**2g.** Postoperative MRI at 10 weeks showed cystic defective area healed　**2h.** Postoperative MRI at 6 months showed cystic defective area healed

免损伤腓总神经，对于半月板白区游离缘 3 mm 内的撕裂给予修整，用刨刀及半月板挫打磨使陈旧撕裂部新鲜化，然后首选垂直缝合[17-18]，以利于愈合。②腰穿套管针直径为 1.6 mm，尽量减少穿刺次数，以降低医源性半月板及软骨损伤。③须用同一手术钳夹持被引入关节腔的两钢丝端并拉出操作皮肤切口，否则，钢丝引导的缝合线易被软组织缠绕。④须在关节囊外表面打结，若在关节囊外组织内打结，半月板撕裂部及囊肿缺损区易不愈合。⑤对于半月板撕裂严重、囊肿缺损区非常大造成不能缝合的，则行半月板部分或全部切除。

综上所述，本组患者均采用关节镜下彻底清除囊肿壁，腰穿套管针辅助钢丝引导 PDS 线垂直缝合半月板撕裂部及囊肿缺损区，最大程度地保留了半月板，并同时行半月板损伤修复，稳定了关节，延缓骨软骨退变，术后疗效好，近期随访膝关节功能恢复好。

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