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三种不同方式的肾盂成形术治疗 UPJO 的疗效分析

徐疾飞[1,2],杜和喜[1],王建忠[1,3],梁朝朝[1,3]

摘要 回顾性分析 71 例行肾盂成形术患者的临床资料,分为机器人辅助腹腔镜(RALP)组、传统腹腔镜(LP)组和开放(OP)组。RALP 组手术时间明显短于 LP 组和 OP 组,差异有统计学意义($P<0.001$);LP 组和 OP 组手术时间差异无统计学意义。3 组患者术中出血量、术后肾周引流量及拔管天数、术后住院天数、住院费用比较差异有统计学意义($P<0.05$)。LP 组较 OP 组微创,术中出血量、术后肾周引流量及拔管天数、住院天数均减少,RALP 组则将这些优势进一步扩大,但费用明显高于其他组。3 组患者手术并发症无明显差异,均无严重并发症发生,并且 RALP 及 LP 组无 1 例转为开放手术。3 组患者术后通过定期行彩超、静脉肾盂造影(IVU)、泌尿系磁共振水成像(MRU)、肾图、核素动态肾脏显像(选择其中 1 至 3 项)检查,证实均未再发梗阻,肾盂积水均有不同程度减轻,分肾功能均有不同程度改善。

关键词 机器人辅助腹腔镜;传统腹腔镜;开放手术;肾盂成形术

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开放肾盂成形术(pyeloplasty,OP)曾是治疗肾盂输尿管连接部梗阻(ureteropelvic junction obstruction,UPJO)的标准术式,但自 1993 年首例腹腔镜肾盂成形术(laparoscopic pyeloplasty,LP)开展以来,其已逐渐取代传统开放手术成为治疗 UPJO 的首选术式[1]。近年来,随着机器人腹腔镜肾盂成形术(robotic-assisted laparoscopic pyeloplasty,RALP)的应用,其临床价值逐渐受到重视,并成为手术治疗的另一重要选择[2-3]。该研究收集了 RALP 16 例、LP 20 例及 OP 35 例,对 3 组患者的手术特点及临床疗效进行了对照研究,现报道如下。

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1 材料与方法

1.1 纳入标准 术前 62 例患者通过彩超、CT、静脉肾盂造影(intravenous pyelography,IVU)、泌尿系磁共振水成像(magnetic resonance urography,MRU)、CT 尿路造影(computed tomographyurography,CTU)、CT 血管造影(computed tomography angiography,CTA)中的至少 3 项或多项检查确诊为 UPJO,余 9 例患者通过加行逆行肾盂造影确诊;术前对侧分肾功能正常。术前检查示患侧肾脏重度积水且无功能者、患侧分肾功能≥40% 且 B 超示肾盂分离≤2.0 cm 者、孤立肾者、合并结石者排除在外。

1.2 临床资料 收集安徽医科大学第一附属医院泌尿外科 2013 年 10 月 ~2016 年 3 月收治的 71 例行肾盂成形术患者的相关资料,其中 RALP 组 16 例(中度肾积水 3 例、重度 4 例),LP 组 20 例(中度肾积水 4 例、重度 6 例),OP 组 35 例(中度肾积水 6 例、重度 9 例),3 组手术均由具有丰富手术经验的同一术者完成。各组患者在年龄、性别、体重指数(body mass index,BMI)、美国麻醉医生协会评分(american society of anesthesiologists,ASA)、位置(左/右侧)、术前肾积水程度等方面均无明显差别。见表 1。

表 1 RALP 组、LP 组及 OP 组患者临床资料

组别	RALP 组	LP 组	OP 组	*P* 值
性别(*n*)				0.264
男	7	14	21	
女	9	6	14	
年龄(岁,$\bar{x}\pm s$)	28.6 ± 13.2	37.0 ± 23.3	35.6 ± 17.2	0.311
BMI(kg/cm^2,$\bar{x}\pm s$)	20.9 ± 3.6	21.4 ± 2.9	22.3 ± 4.4	0.467
ASA($\bar{x}\pm s$)	1.1 ± 0.3	1.2 ± 0.4	1.2 ± 0.4	0.457
部位(*n*)				0.790
左	13	13	26	
右	3	7	9	

1.3 手术方法

1.3.1 RALP 组 采用美国 Intuitive Surgical 公司的 DaVinci 系统,采取经腹腔途径。全身麻醉后健侧斜

仰卧位,腰部垫高,调整手术床呈折刀位。取脐部靠患侧上方 2 cm 为镜头穿刺点,气腹针穿刺入腹腔,充入 CO_2 气体至 1.86 kPa,建立气腹。穿刺入 12 mm 腹腔镜穿刺器(Trocar),置入镜头,再分别取患侧肋缘下 3 cm 与腹直肌旁交点为 1 号臂穿刺点。髂前上棘与脐连线,距髂前上棘 3 cm 为 2 号臂穿刺点。分别在直视下穿刺入 8 mm Trocar。最后取脐部靠患侧下方 3 cm 距 1 号臂穿刺点 5 cm 为辅助穿刺点,直视下穿刺入 12 mm Trocar。以镜头穿刺点与目标物中点连线的延长线为指引,指挥床旁机械臂系统(Patient Cart)入位,调整各臂角度,首先将镜头臂与镜头穿刺点 Trocar 连接,再将 1 号臂、2 号臂分别与 1 号臂穿刺点、2 号臂穿刺点 Trocar 连接,分别置入电剪和分离钳,最后直视下调整器械至目标区,开始手术。沿结肠旁沟外打开侧腹膜,进入腹膜后间隙,游离出肾盂、输尿管。观察病变位置和程度,切除狭窄处并适当裁剪肾盂,可吸收线连续缝合肾盂上端,预留约 1 cm 开口与输尿管缝合。于 6 点及 12 点方向将远端输尿管缝合至肾盂,导丝引导下置入 F6 双 J 管,一端入膀胱,一端入肾盂。吻合输尿管和肾盂,完毕后检查吻合口通畅,输尿管未旋转、扭曲、牵拉过紧。冲洗术野,置肾周引流管外固定。切除标本取出,送病理。撤除机械臂手术系统和 Trocar。

1.3.2 LP 组及 OP 组 LP 组:采用德国 Stroz 公司的高清腹腔镜系统,采取后腹膜途径。患者健侧卧位,取 12 肋缘下一长约 1.5 cm 切口,向下分离至腰背筋膜深面,用手指分离腹膜后间隙并利用自制气囊扩张。再分别于腋前线第 12 肋下及髂前上棘约 2 cm 分别置入 10 mm Trocar,原切口置入 5 mm Trocar,充入 CO_2 气体。切开肾周筋膜,打开肾周脂肪囊,游离出肾盂、输尿管。切除狭窄处 UPJ 并适当裁剪肾盂,将输尿管与肾盂吻合,内置入 F6 双 J 管。肾周置引流管外固定。切除标本送病理。OP 组:患者取健侧卧位,取 12 肋缘下切口,依层切开,进入后腹膜间隙。游离出肾盂、输尿管。切除狭窄处 UPJ 并适当裁剪肾盂,将输尿管与肾盂吻合,内置入 F6 双 J 管。肾周置引流管外固定。切除标本送病理。

1.4 观察指标及术后随访 观察 3 组手术时间、术中出血量、肾周引流管拔出天数及肾周引流量、住院天数、住院费用及手术并发症情况等指标。RALP 组手术时间包括术前装机时间(18 ± 5.6) min。术中出血量根据术毕吸引器中出血量评估。术后随访包括腰腹痛症状有无缓解或消失,以及尿常规、尿培养、彩超、IVU、MRU、CTU、利尿性肾图、核素动态肾脏显像检查等。

1.5 统计学处理 采用 SPSS 16.0 统计软件进行分析,计量资料用 $\bar{x} \pm s$ 表示,三组间比较采用方差分析,计数资料的比较用 χ^2 检验,$P < 0.05$ 为差异有统计学意义。

2 结果

所有患者手术均成功完成,无严重并发症(Clavien Ⅰ~Ⅱ级)。手术时间 RALP 组和 LP 组、OP 组比较,差异有统计学意义($F = 24.93$,$P < 0.001$),LP 组和 OP 组差异无统计学意义。术中出血量、术后肾周引流量及拔管天数、住院天数上 RALP 组优于 LP 组($F = 8.46$、9.86、0.554、0.299)和 OP 组($F = 7.61$、8.87、0.498、0.269),LP 组优于 OP 组($F = 7.07$、8.24、0.463、0.259),差异有统计学意义($P < 0.05$)。住院费用 RALP 组明显高于 LP 组($F = 2.18$,$P < 0.001$),LP 组高于 OP 组($F = 1.82$,$P < 0.05$)。3 组患者手术并发症发生情况差异无统计学意义。OP 组及 LP 组各出现 3 例泌尿系感染;OP 组出现 2 例漏尿,1 例出血;LP 组出现 1 例漏尿;RALP 组出现 1 例泌尿系感染,1 例肺部感染。予以抗感染止血治疗、延长引流管留置时间后治愈。术后随访 2~31 个月,术前有腰腹痛症状者,术后均缓解或消失。所有患者肾盂、输尿管引流通畅,未见梗阻再发,肾积水均有不同程度减轻,分肾功能均有所改善。见表 2。

表 2 RALP 组、LP 组及 OP 组临床观察指标比较($\bar{x} \pm s$)

组别	RALP 组($n = 16$)	LP 组($n = 20$)	OP 组($n = 35$)
手术时间(min)	72.69 ± 16.78*#	125.60 ± 35.36	127.40 ± 42.64
术中出血量(ml)	21.25 ± 8.85*#	52.50 ± 27.60#	67.71 ± 28.50
术后住院天数(d)	4.19 ± 0.91*#	5.90 ± 0.85#	6.94 ± 0.91
拔管天数(d)	2.63 ± 0.72*#	3.95 ± 1.54#	5.97 ± 1.98
住院费用(元)	46 055.00 ± 5 181.10*	25 134.00 ± 7 740.30#	20 384.00 ± 6 259.50
并发症(n)	2	4	6
肾周引流量(ml)	30.94 ± 12.94*#	53.25 ± 21.42#	74.86 ± 37.43

与 LP 组比较:* $P < 0.05$;与 OP 组比较:# $P < 0.05$

3 讨论

UPJO 多为先天性异常，是临床上引起梗阻性肾积水及肾功能损害的常见疾病。在新生儿中，该病的发生率为 0.1% ~0.05%，成人 UPJO 发病率约为 0.07%[3]。UPJO 患者早期多采用开放方法，其中以 Anderson-Hynes 离断式成形术应用最广，该术式的治愈率达 90%[4]，现多数医院都能成功开展。本研究中 RALP 组手术时间明显短于 LP 组和 OP 组；患者住院天数及术后引流管拔出天数 LP 组优于 OP 组，RALP 组优于 LP 组，这与国外的文献[5-8]报道相符。因机器人手术系统具有三维、放大的手术视野，拥有 7 个自由度纤细的腔内腕器械，持针器可灵活地从各个角度进出针，术者坐位不易疲劳[9]，故降低了肾盂成形的手术难度，有助于术者明确术中解剖关系及缝合等精细操作的完成，大大降低了学习曲线。

肾盂成形术主要有术后漏尿、尿路感染、双 J 管移位等并发症。本研究中三组患者并发症的发生率均较低。LP 组 1 例患者因双 J 管移位出现高热症状。尽管当前多数患者在行肾盂成形术中常规放置双 J 管进行引流，然而也有研究[10]认为术中可不放置双 J 管，这样可减少尿路感染、双 J 管移位等并发症的发生。近年来，研究者们尝试采用机器人肾盂成形术治疗初次手术失败的患者并取得了良好的手术效果[2]。Asensio et al[11]认为机器人二次肾盂成形术安全可行，并且在手术操作上比开放手术更具有优势。

当前国内机器人系统尚未得到普及，分析原因主要由于其采购与保养费用昂贵，且手术费用尚未纳入医保范围。因此，这在一定程度上限制了机器人手术的开展。而传统腹腔镜则因费用相对较低，故更容易得到推广。

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Analysis of curative effect of three different ways of UPJO pyeloplasty treatment

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Abstract The clinical data of 71 patients undergoing pyeloplasty were retrospectively analyzed. They were divided into three groups: robot assisted laparoscopic (RALP) group, conventional laparoscopic (LP) group and open pyeloplasty(OP) group. The operative time was significantly shorter in the RALP group than LP group and OP group

($P<0.001$). There was no statistically significant difference between the LP group and the OP group. There were significant differences in blood loss, postoperative peritumoral drainage volume and days of extubation, postoperative hospital stay and hospitalization cost among the three groups ($P<0.05$). Compared with OP group, the amount of blood loss, postoperative peritumoral drainage volume, days of extubation and days of hospitalization were reduced in the LP group, while the RALP group further expanded these advantages, but the cost was significantly higher than that of other groups. There were no significant complications in the three groups, and none of the patients in the RALP and LP groups switched to open surgery. There was no recurrence of obstruction in all patients who were periodical examined by color Doppler ultrasonography, intravenous pyelography (IVU), magnetic resonance imaging (MRU), renogram and nuclide dynamic renal imaging (select 1 to 3 method) after surgery. all patients' hdronephrosis were reduced in varying degrees, unilateral all patients' renal function were improved in varying degrees.

Key words robotic-assisted laparoscopic pyeloplasty; laparoscopic pyeloplasty; open pyeloplasty; pyeloplasty

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ratio as a quick and reliable predictive marker to diagnose the severity of diabeticretinopathy[J]. Diabetes Technol Ther, 2013, 15(11): 942-7.

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Platelet-to-lymphocyte ratio as potential biomarker in the diagnosis of diabetic retinopathy

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Abstract ***Objective*** To investigate the relationship between platelet-to-lymphocyte ratio (PLR) and diabetic retinopathy(DR). ***Methods*** We analyzed 94 cases of type Ⅱ diabetic patients without retinopathy and 92 cases of diabetic retinopathy(DR) patients retrospectively. 91 normal subjects matched with age and sex were taken as control group. Retinopathy was graded using the International Clinical Diabetic Retinopathy Disease Severity Scale. Differences in PLR among patients and healthy subjects were assessed by using unpaired Student *t* test and one-way analysis of variance (ANOVA). Receiver operating characteristic (ROC) curves were used to evaluate the sensitivity and specificity of PLR, PLT and lymphocytes in DR. ***Results*** The mean PLR values of the patients were significantly higher than those of the healthy control group ($P<0.001$), and PLR values of the patients with DR were higher than those of the patients without DR($P=0.000\ 4$). When cut-off value of PLR was 107.50, the sensitivity and specificity of the PLR for DR diagnosis were 65.2% and 64.9%, respectively, with an area under the curve at 0.724. The area under the curve (AUC) of PLR was 0.724. ***Conclusion*** Our study demonstrates that higher PLR values would be a useful marker when evaluating diabetes patients with DR.

Key words platelet-to-lymphocyte ratio; diabetic retinopathy; diagnosis; clinical value