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比较 CSPO 和 ISR 治疗超低位直肠癌的保肛效果*

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摘要 目的:比较适形切除保肛术(CSPO)和经内外括约肌间切除术(ISR)治疗超低位直肠癌的保肛效果。**方法:**选择 2020 年 6 月至 2022 年 3 月选择在本院诊治的超低位直肠癌患者 63 例作为研究对象,根据随机分配原则把患者分为 ISR 组 31 例与 CSPO 组 32 例,ISR 组予经内外括约肌间切除术治疗,CSPO 组予适形切除保肛术治疗,记录与随访患者的近期与远期预后。**结果:**所有患者都顺利完成保肛,两组的术中出血量、淋巴结清扫数目对比无差异($P>0.05$),CSPO 组的手术时间、术后肠道功能恢复时间、术后住院时间明显少于 ISR 组($P<0.05$)。CSPO 组的术后 7 d 的切口感染、泌尿系感染、吻合口狭窄、吻合口瘘等并发症发生率为 6.3%,明显低于 ISR 组的 29.0%($P<0.05$)。CSPO 组术后 1 d、3 d、7 d 的血清降钙素原(PCT)、超敏 C-反应蛋白(hs-CRP)含量都明显少于 ISR 组($P<0.05$)。ISR 组术后 3 个月的满意度为 80.6%,明显低于 CSPO 组 100.0%($P<0.05$)。**结论:**相对经内外括约肌间切除术,适形切除保肛术治疗超低位直肠癌能有效抑制血清 PCT 与 hs-CRP 的表达,具有很好的保肛效果,能减少并发症的发生,还可促进患者康复,从而持续提高患者的随访生存率。

关键词:经内外括约肌间切除术;适形切除保肛术;超低位直肠癌

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Comparison of Anus-preserving Effects of CSPO and ISR in the Treatment of Ultra-low Rectal Cancer*

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ABSTRACT Objective: To compare the anus-preservation effects of conformal sphincter-preserving operation (CSPO) and intersphincteric rectal resection (ISR) in the treatment of ultra-low rectal cancer. **Methods:** 63 patients with ultra-low rectal cancer who were diagnosed and treated in our hospital from June 2020 to March 2022 were selected as the research subjects. According to the principle of random allocation, the patients were divided into the ISR group with 31 cases and the CSPO group with 32 cases. Intersphincterectomy was performed, and the CSPO group was treated with conformal excision and sphincter preservation. The short-term and long-term prognosis of the patients were recorded and followed up. **Results:** All patients were successfully completed sphincter preservation. There was no difference in intraoperative blood loss and number of lymph node dissections compared between the two groups ($P>0.05$). The operative time, postoperative bowel function recovery time, and postoperative hospital stay in the CSPO group were less than the ISR group ($P<0.05$). There was no difference in intraoperative blood loss and number of lymph node dissections compared between the two groups ($P>0.05$). The incidence rates of complications such as incision infection, urinary tract infection, anastomotic stenosis and anastomotic leakage in CSPO group was 6.3% at 7 days after operation, which was significantly lower than 29.0% in ISR group ($P<0.05$). The levels of serum procalcitonin (PCT) and high-sensitivity C-reactive protein (hs-CRP) in CSPO group were lower than those in ISR group at 1 d, 3 d, and 7 d after operation ($P<0.05$). The satisfaction rate 3 months after the operation in the ISR group were 80.6%, which were lower than that in the CSPO group (100.0%) ($P<0.05$). **Conclusion:** Compares with internal sphincterectomy, conformal excision and sphincter-preserving surgery can effectively inhibit the expression of serum PCT and hs-CRP in the treatment of ultra-low rectal cancer. recovery, thereby continuing to improve the satisfaction rate of patients.

Key words: Internal sphincterotomy; Conformal excision and sphincter preservation; Ultra-low rectal cancer

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前言

直肠癌是一种齿状线至直肠乙状结肠交界处的癌。超低位

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直肠癌为直肠癌的主要类型之一,是指距离齿状线 ≤ 4 cm的直肠癌,占比40.0%左右,具有死亡率高、复发率高、转移率高等特点^[12]。当前由于人民饮食习惯的变化与老龄人口的增加,也使得直肠癌的发病率持续增加,严重影响患者的身心健康^[3]。超低位直肠癌的周围解剖比较复杂,处于在盆腔的较深部位,很难全完切除肿瘤。随着腹腔镜微创手术的推广,尤其是全直肠系膜切除的广泛应用,也使得保肛手术的技术越来越成熟,很多低位直肠癌患者逐渐接受保肛手术,该手术的实施可提高其生活质量^[45]。但是全直肠系膜切除具有吻合口位置较低、操作空间狭小等不足,在术后容易出现各种并发症。现代研究显示,经内外括约肌间切除术(Intersphincteric rectal resection, ISR)可分离内括约肌与外括约肌沿着内外括约肌间的平面,可保留外括约肌和肛管周围组织,还可切除全部或部分内括约肌以保证2 cm远端切缘,较好的保留了肛门功能^[67]。但因内括约肌切除术对直肠内括约肌、齿状线进行了全部切除,需进行广泛分离,极易损伤自主神经,造成大量患者术后肛门功能较低^[89]。适形切除保肛术(Conformal sphincter-preserving operation, CSPO)可为患者提供了更多的保肛机会,更好的保留括约肌间隙的自主神经,保留了更多齿状线和直肠壁,能促进患者术后肛门功能的

恢复^[10,11]。本文具体探讨与分析了比较CSPO和ISR治疗超低位直肠癌的保肛效果,以明确CSPO的应用价值。

1 资料与方法

1.1 研究对象

选择2020年6月到2022年3月选择在广州医科大学附属第一医院诊治的超低位直肠癌患者63例作为研究对象。伦理委员批准此次研究。

纳入标准:首次接受手术治疗;年龄40-75岁;肠镜及病理学检查诊断为超低位直肠腺癌;临床资料完整;预计生存期 ≥ 3 个月;择期手术;肿瘤下缘距肛缘 ≤ 5 cm;临床分期为I期/II期,具有保肛手术指征;患者签署了知情同意书。

排除标准:临床资料不完整者;精神智力有障碍者;术前接受过放化疗治疗患者;妊娠与哺乳期妇女、备孕期妇女;脏器功能损害严重者;患者合并严重心血管疾病;术前肛门功能良好;合并传染性疾病者;合并其他恶性肿瘤者。

根据随机分配原则把患者分为ISR组31例与CSPO组32例,两组患者一般资料对比无差异($P>0.05$)。见表1。

表1 一般资料对比

Table 1 The comparison of the general data

Groups	n	Clinical stage (Phase I / Phase II)	Gender (male / female)	Age (year)	Body mass index (kg/m ²)	Tumor distance from the dentate line (cm)	Maximum diameter of the tumor (cm)
ISR group	31	16/15	21/10	55.93 $\pm$ 3.54	21.62 $\pm$ 1.03	4.55 $\pm$ 0.19	5.42 $\pm$ 0.19
CSPO group	32	16/16	22/10	56.41 $\pm$ 3.13	21.83 $\pm$ 1.59	4.48 $\pm$ 0.15	5.50 $\pm$ 0.17

1.2 治疗方法

ISR组:予内外括约肌间切除术治疗,采用气管插管全麻,经腹腔镜游离乙状结肠及系膜,在肠系膜动脉根部结扎肠系膜下动脉,根据全直肠系膜切除(TME)原则游离至直肠下段后,充分暴露耻骨直肠肌,经盆腔入路游离括约肌间隙,切断裂隙韧带。进入括约肌间隙,离断部分联合纵肌,向肛侧游离2-4 cm。扩肛后采用盘状拉钩暴露肛管,在肿瘤下缘1 cm处双重荷包缝合关闭肠腔,对内括约肌、联合纵肌实行切断操作,冲洗远端肠管,将标本经肛门拖出并切断,于近端乙状结肠和肛管全层间断缝合重建消化道,行预防性肠造口术。

CSPO组:进行适形切除保肛术治疗,经腹腔镜游离乙状结肠及系膜,在肠系膜动脉根部结扎,并依据全直肠系膜切除(TME)原则游离直肠下段后,分离直肠至裂隙韧带,并将裂隙韧带切断。扩肛后在直、乙交界处离断肠管,经肛门完全翻转直肠。根据肿瘤特征设计适形切除线,保留肿瘤对侧内括约肌、直肠壁、齿状线,使用可吸收线间断全层缝合乙状结肠及直肠残端,行预防性肠造口术。

1.3 观察指标

(1)记录与观察两组的术中出血量、手术时间、术中淋巴结清扫数目、术后肠道功能恢复时间、术后住院时间。

(2)于术后7 d,记录与观察两组患者出现的切口感染、泌尿系感染、吻合口狭窄、吻合口瘘。

(3)所有患者在术后1 d、3 d、7 d采集患者的静脉血2-3 mL,分离上层血清后,采用酶联免疫法检测血清降钙素原(Procalcitonin, PCT)、超敏C-反应蛋白(High-sensitivity C-reactive protein, hs-CRP)含量。

(4)于术后3个月,随访患者肛门满意度情况,分为比较满意、非常满意、一般满意,(比较满意+非常满意)/例数 $\times 100.0\%$ =满意度。

1.4 统计方法

应用软件SPSS19.00展开分析, $P<0.05$ 代表差异有统计学意义,n%表示计数数据,卡方 χ^2 分析,均数 $\pm$ 标准差表示计量数据,t检验,检验水准为 $\alpha=0.05$ 。

2 结果

2.1 围手术指标对比

两组术中出血量、淋巴结清扫数目对比无差异($P>0.05$),CSPO组术后肠道功能恢复时间、手术时间、术后住院时间明显少于ISR组($P<0.05$)。见表2。

2.2 并发症发生情况对比

CSPO组的术后7 d的切口感染、泌尿系感染、吻合口狭窄、吻合口瘘等并发症发生率为6.3%,明显低于ISR组的29.0%($P<0.05$)。见表3。

表 2 围手术指标对比(均数± 标准差)

Table 2 Comparison of perioperative indexes (mean ± standard deviation)

Groups	n	Operation time (min)	Intraoperative	Postoperative	Postoperative	Number of lymph node dissection (n)
			bleeding volume (mL)	recovery time of intestinal function (d)	length of hospital stay (d)	
ISR group	31	254.26± 28.19	106.90± 15.96	2.84± 0.45	8.32± 0.91	12.10± 1.97
CSPO group	32	175.97± 39.65 [#]	102.41± 20.87	1.84± 0.37 [#]	6.69± 0.47 [#]	12.31± 1.45

Note: compared with the ISR group, [#]*P*<0.05, the same below.

表 3 两组术后 7 d 的并发症发生情况对比(n)

Table 3 Comparison of the two groups (n)

Groups	n	Infection of incisional wound	Urinary infection	Narrow anastomosis	Anastomotic fistula	Summation
ISR group	31	3	2	3	1	9(29.0%)
CSPO group	32	0	0	1	1	2(6.3%) [#]

2.3 血清 PCT 与 hs-CRP 含量对比

明显少于 ISR 组(*P*<0.05)。见表 4。

CSPO 组术后 1 d、3 d、7 d 的血清 PCT 与 hs-CRP 含量都

表 4 两组术后不同时间点的血清 PCT 与 hs-CRP 含量对比(均数± 标准差)

Table 4 The comparison of serum PCT and hs-CRP content at different postoperative time points in both groups (mean ± standard deviation)

Groups	n	PCT(μg/L)			hs-CRP(mg/L)		
		1 d after surgery	3 d after surgery	7 d after surgery	1 d after surgery	3 d after surgery	7 d after surgery
ISR group	31	1.85± 0.12	1.18± 0.03	0.72± 0.03	22.68± 2.90	11.43± 1.37	5.62± 0.37
CSPO group	32	0.86± 0.07 [#]	0.54± 0.08 [#]	0.32± 0.03 [#]	11.43± 1.37 [#]	6.01± 0.44 [#]	3.06± 0.24 [#]

2.4 术后 3 个月患者满意度对比

组的100.0 %(*P*<0.05)。见表 5。

ISR 组术后 3 个月患者满意度为 80.6 %，明显低于 CSPO

表 5 术后 3 个月满意度对比(n)

Table 5 Comparison of satisfaction at 3 months after surgery (n)

Groups	n	Very satisfied	Quite satisfied	Dissatisfied	Satisfaction rate
ISR group	31	11	14	6	25(80.6%)
CSPO group	32	30	2	0	32(100.0%) [#]

3 讨论

直肠癌是常见的高危害消化系统恶性肿瘤,是指从齿状线至直肠乙状结肠交界处之间的癌,且多数是位于腹膜反折以下的低位直肠癌。直肠癌位置低,容易被直肠指诊及乙状结肠镜诊断。但因其位置深入盆腔,解剖关系复杂,手术不易彻底,术后复发率高。中下段直肠癌与肛管括约肌接近,手术时很难保留肛门及其功能是手术的一个难题,也是手术方法上争论最多的一种疾病^[12]。随着腹腔镜技术和直肠癌理论研究的进步,低位直肠癌甚至是超低位直肠癌保肛手术已经得到了广泛应用,保肛手术率不断上升,但是术后并发症与患者肛门功能的变化一直是困扰外科医生的难题^[13,14]。如直肠癌保肛术后并发症发生率一直居高不下,除患者自身原因外,手术方式的选择与并

发症的发生也存在相关性^[15]。

本研究显示:所有患者都顺利完成保肛,两组的术中出血量、淋巴结清扫数目对比无明显差异,CSPO 组的手术时间、术后肠道功能恢复时间、术后住院时间明显少于 ISR 组;CSPO 组的术后 7 d 的切口感染、泌尿系感染、吻合口狭窄、吻合口瘘等并发症发生率为 6.3 %,明显低于 ISR 组的 29.0 %,表明相对于经内外括约肌间切除术,适形切除保肛术治疗超低位直肠癌具有很好的保肛效果,能减少并发症的发生,还可促进患者康复。该结果与臧怡雯^[16]等人的报道具有一致性,即适形切除保肛术可减少并发症,有利于患者康复。分析可知:经内外括约肌间切除术是目前治疗超低位直肠癌的主要术式,具有操作方便、患者术中出血量少等特点^[17]。但经内外括约肌间切除术要求全直肠系膜分离,强调完全切除内括约肌和齿状线在分离括

约肌间隙平面的同时,容易破坏自主神经,为此术后并发症的发生率比较高^[18-20]。适形切除保肛术可在保证疾病彻底根治的前提下,确保足够肿瘤远切缘,且可更多的保留肛门内括约肌、齿状线以及肿瘤对侧的正常肠壁,减少对患者创伤、改善患者肛门功能^[21];CSPO 组术后 1 d、3 d、7 d 的血清 PCT 与 hs-CRP 含量都明显少于 ISR 组,表明相对经内外括约肌间切除术,适形切除保肛术治疗超低位直肠癌能有效抑制血清 PCT 与 hs-CRP 的表达。分析可知,手术为超低位直肠癌的主要治疗方法,能显著降低患者的死亡率,其治疗原则是全直肠系膜切除术、保留腹腔自主神经与肠系膜下动脉根部淋巴结清扫,其中全直肠系膜切除术可使原发病灶最大限度的清除,为制定术后治疗方案提供依据^[22,23]。而 ISR 的出现为超低位直肠癌患者提供了更多的保肛机会,在完成经腹全直肠系膜切除后,分离并切除内括约肌进而获得足够远切缘,然后经结肛吻合技术对肠道连续性进行保留,能有效避免永久性造瘘^[24,25]。适形切除保肛术可保证手术切除范围的完整性,可使边缘动脉血流灌注显著增加,有利于患者肠道功能恢复,减少对患者应激创伤,从而抑制炎症因子的表达^[26,27]。本研究也显示 ISR 组术后 3 个月的满意度为 80.6%,明显低于 CSPO 组的 100.0% ($P < 0.05$),表明相对经内外括约肌切除术,适形切除保肛术治疗超低位直肠癌能有效提高患者的满意度。主要在于适形切除保肛术保证了淋巴结清扫的彻底性,可保证边缘动脉充足的血流灌注,降低了并发症的发生率,从而可提高患者的满意度^[28-30]。本研究具有一定不足之处,如样本量较小,未主观与客观分析患者肛门功能;部分患者术后时间至今不够 1 年或者 3 年,未能对患者 1 年或者 3 年生存率进行统计分析,将在后续研究中探讨。

总之,相对经内外括约肌间切除术,适形切除保肛术治疗超低位直肠癌能有效抑制血清 PCT 与 hs-CRP 的表达,具有很好的保肛效果,能减少并发症,促进患者康复,从而持续提高患者的满意度。

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(上接第 478 页)

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