

doi: 10.13241/j.cnki.pmb.2022.16.028

宫腔镜下电切术与刮宫术治疗子宫内膜息肉合并不孕症的疗效比较 及术后妊娠的影响因素分析*

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摘要 目的:比较宫腔镜下电切术与宫腔镜下刮宫术治疗子宫内膜息肉合并不孕症的疗效,并分析术后妊娠的影响因素。**方法:**选取2018年10月~2020年9月我院收治的318例子宫内膜息肉合并不孕症患者,其中接受宫腔镜下电切术治疗的159例归为电切术组,接受宫腔镜下刮宫术治疗的159例归为刮宫术组,术后均随访12个月,比较两组手术相关指标、子宫内膜厚度、月经量和围术期并发症、息肉复发率、临床妊娠率,多因素 Logistic 回归分析术后妊娠的影响因素。**结果:**电切术组术中出血量低于刮宫术组($P<0.05$),两组患者手术时间、住院时间比较无差异($P>0.05$)。两组患者术后12个月子宫内膜厚度较术前降低,且电切术组术后子宫内膜厚度低于刮宫术组($P<0.05$)。两组患者术后1个月、术后3个月月经量较术前逐渐减少,且电切术组较刮宫术组变化更明显($P<0.05$)。电切术组息肉复发率低于刮宫术组,而临床妊娠率高于刮宫术组($P<0.05$),两组患者围术期并发症总发生率比较差异无统计学意义($P>0.05$)。多因素 Logistic 回归分析结果显示,年龄 ≥ 35 岁、多发息肉、息肉直径 ≥ 1 cm、宫角息肉、术后子宫内膜厚度 ≥ 13 mm、术后息肉复发是影响子宫内膜息肉合并不孕症患者术后妊娠的危险因素($P<0.05$)。**结论:**宫腔镜下电切术治疗子宫内膜息肉合并不孕症患者疗效较宫腔镜下刮宫术更为显著,其术后妊娠率受年龄、息肉类型、息肉直径、息肉部位、术后子宫内膜厚度、术后息肉复发等因素影响。

关键词:子宫内膜息肉;不孕症;宫腔镜下电切术;宫腔镜下刮宫术;妊娠

中图分类号:R711.74;R711.6 **文献标识码:**A **文章编号:**1673-6273(2022)16-3137-06

Comparison of the Efficacy of Hysteroscopic Electrosurgery and Curettage in the Treatment of Endometrial Polyps Combined with Infertility and Analysis of Influencing Factors of Postoperative Pregnancy*

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ABSTRACT Objective: To compare the efficacy of hysteroscopic electrosurgery and hysteroscopic curettage in the treatment of endometrial polyps combined with infertility, and to analyze the influencing factors of postoperative pregnancy. **Methods:** 318 patients with endometrial polyps combined with infertility who were treated in our hospital from October 2018 to September 2020 were selected, of which 159 patients treated with hysteroscopic electrosurgery were classified as electrosurgical resection group and 159 patients treated with hysteroscopic curettage were classified as curettage group. The patients were postoperative followed up for 12 months. The surgical indexes, endometrial thickness, menstrual volume, perioperative complications, polyp recurrence rate and clinical pregnancy rate were compared between the two groups. The influencing factors of postoperative pregnancy were analyzed by multivariate Logistic regression. **Results:** The intraoperative blood loss in the electrosurgery group was lower than that in the curettage group ($P<0.05$), and there were no significant differences in operation time and hospitalization time between the two groups ($P>0.05$). The endometrial thickness of patients in the two groups at 12 months after operation was lower than that before operation, and the endometrial thickness in the electrosurgery group was lower than that in the curettage group ($P<0.05$). The menstrual volume of patients in the two groups at 1 month and 3 months after operation gradually decreased compared with that before operation, and the change in the electrosurgery group was more obvious than that in the curettage group ($P<0.05$). The polyp recurrence rate in the electrosurgery group was lower than that in the curettage group,

* 基金项目:湖南省卫生计生委科研计划项目(B201601330)

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(收稿日期:2022-02-05 接受日期:2022-02-27)

while the clinical pregnancy rate was higher than that in the curettage group ($P<0.05$). There was no significant difference in the total incidence of perioperative complications between the two groups ($P>0.05$). The results of multivariate Logistic regression analysis showed that age ≥ 35 years, multiple polyps, polyp diameter ≥ 1 cm, uterine horn polyps, postoperative endometrial thickness ≥ 13 mm and postoperative polyp recurrence were the risk factors of postoperative pregnancy in patients with endometrial polyps combined with infertility ($P<0.05$). **Conclusion:** The curative effect of hysteroscopic electrosurgery in the treatment of endometrial polyps combined with infertility is more significant than hysteroscopic curettage. The postoperative pregnancy rate is affected by age, polyp type, polyp diameter, polyp location, postoperative endometrial thickness, postoperative polyp recurrence and other factors.

Key words: Endometrial polyps; Infertility; Hysteroscopic electrosurgery; Hysteroscopic curettage; Pregnancy

Chinese Library Classification(CLC): R711.74; R711.6 **Document code:** A

Article ID: 1673-6273(2022)16-3137-06

前言

子宫内膜息肉是临床常见妇科疾病,主要是因子宫内膜的局部增生引起,由内膜腺体、血管和间质构成,以异常阴道流血和月经量增多为常见表现,其发生率随着年龄增加而升高^[1-3]。子宫内膜息肉虽是良性疾病,但息肉过大或息肉突入子宫颈管,可能继发感染、坏死,同时还会影响宫腔内环境导致不孕症的发生,严重影响患者生理和心理健康^[4,5]。目前尚不明确子宫内膜息肉的发病机制,临床主张尽早手术切除,传统治疗子宫内膜息肉的主要手术方式为息肉钳除和刮除术,创伤大、术后复发率高。近年来宫腔镜手术以其微创、术后恢复快等优势被广泛应用于子宫内膜息肉合并不孕症的治疗,宫腔镜下电切术与宫腔镜下刮宫术均能获得可靠疗效^[6-8],但关于两者对子宫内膜息肉合并不孕症的疗效和对术后妊娠率的影响的比较报道较少。本研究就两种手术方式对子宫内膜息肉合并不孕症的治疗疗效,并进一步分析术后患者妊娠的影响因素,旨在为治疗子宫内膜息肉合并不孕症寻找可靠方案。

1 资料与方法

1.1 一般资料

选取2018年10月~2020年9月我院收治的子宫内膜息肉合并不孕症患者318例,其中159例接受宫腔镜下电切术治疗(电切术组),年龄20~40(31.75 $\pm$ 5.88)岁;息肉类型:104例单发,55例多发;息肉直径:82例 ≥ 1 cm,77例 <1 cm;息肉部位:51例前壁,30例后壁,49例侧壁,29例宫角;不孕类型:80例继发不孕,79例原发不孕。159例接受宫腔镜下刮宫术治疗(刮宫术组),年龄20~40(31.43 $\pm$ 5.27)岁;息肉类型:109例单发,50例多发;息肉直径:87例 ≥ 1 cm,72例 <1 cm;息肉部位:55例前壁,29例后壁,46例侧壁,29例宫角;不孕类型:76例继发不孕,83例原发不孕。两组患者一般资料比较差异无统计学意义($P>0.05$)。纳入标准:(1)经宫腔镜检查确诊为子宫内膜息肉;(2)不孕症符合《不孕症诊断指南》^[9]诊断标准;(3)患者及家属均知情研究,并签署同意书;(4)临床资料和随访资料完整者。排除标准:(1)合并其他子宫疾病者;(2)男方因素、排卵因素、输卵管因素等其他因素导致的不孕症者;(3)性生活不规律者;(4)无生育需求者;(5)合并心、肝、肾功能损害者;(6)子宫穿孔、急性或亚急性生殖道或盆腔炎症、子宫活跃性大量出血等宫腔镜手术相对禁忌证者。本研究经我院伦理委员会批准。

1.2 手术方法

月经干净后3~7 d内开始手术治疗,术前6~8 h禁食、禁水,取膀胱截石位,气管插管麻醉,海藻棒置入宫颈促进扩张,选择日本Olympus A4674A宫腔镜,以0.9%氯化钠溶液作膨宫介质,将宫压力维持于90~100 mmHg。确定宫腔深度后置入宫腔镜确定内膜息肉位置、大小、数目。电切术组实施宫腔镜下电切术:以日本Olympus WA22302D等离子电切环自息肉的远方套住息肉的蒂根后切割,电切深度达蒂根下2 mm~3 mm,注意保护病变周围正常内膜。刮宫术组实施选择合适型号的刮匙刮出息肉。两组患者术中密切观察血压、心率等生命体征变化,息肉切除或刮除后均给予负压吸引宫腔,腔镜下观察是否残留,术后常规使用抗生素预防感染,并随访12个月。

1.3 观察指标

(1)记录患者术中出血量、手术时间和住院时间等手术相关指标。(2)经阴道超声检查记录患者术前和术后12个月子宫内膜厚度变化。(3)采用月经失血图计算患者术前、术后1个月、术后3个月的月经量变化。(4)记录患者围术期并发症发生率、术后12个月息肉复发率。(5)记录患者术后12个月临床妊娠率(有妊娠征象,超声检查存在 ≥ 1 个妊娠囊)^[9],并根据是否妊娠将318例患者分为妊娠组和未妊娠组。(6)收集所有患者的临床资料和随访资料,包括年龄、息肉类型、息肉直径、息肉部位、不孕类型、不孕时间、术后子宫内膜厚度、术后3个月月经量、围术期是否发生并发症、术后是否息肉复发。

1.4 统计学分析

选用SPSS27.0统计学软件,计数资料以n(%)表示,行 χ^2 检验;计量资料均呈正态分布,以 $\bar{x}$ 表示,独立或配对t检验,多个时间点比较重复测量方差分析;多因素Logistic回归分析术后妊娠的影响因素; $P<0.05$ 为差异有统计学意义。

2 结果

2.1 两组患者手术相关指标及子宫内膜厚度比较

电切术组术中出血量低于刮宫术组,两组患者术后12个月子宫内膜厚度较术前降低,且电切术组子宫内膜厚度低于刮宫术组($P<0.05$);两组患者手术时间、住院时间比较无差异($P>0.05$)。见表1。

2.2 两组患者手术前后月经量比较

两组患者术后1个月、术后3个月月经量较术前逐渐减少,且电切术组较刮宫术组变化更明显($P<0.05$)。见表2。

表 1 两组患者手术相关指标及子宫内膜厚度比较($\bar{x} \pm s$)Table 1 Comparison of surgical indexes and endometrial thickness between the two groups($\bar{x} \pm s$)

Groups	n	Intraoperative blood loss(mL)	Operation time (min)	Hospitalization time(d)	Endometrial thickness(mm)	
					Before operation	12 months after operation
Electrosurgery group	159	27.37± 10.14	24.39± 8.80	3.68± 0.45	15.58± 2.65	12.39± 2.01 ^a
Curettage group	159	34.13± 10.81	23.75± 9.14	3.75± 0.46	15.47± 2.44	13.58± 2.14 ^a
t	-	-5.753	0.636	-1.265	0.660	-5.110
P	-	<0.001	0.525	0.207	0.509	<0.001

Note: compared with before operation, ^a $P < 0.05$.

表 2 两组患者手术前后月经量比较($\bar{x} \pm s$)Table 2 Comparison of menstrual volume between the two groups before and after operation($\bar{x} \pm s$)

Groups	n	Menstrual volume(mL)				F	P
		Before operation	1 month after operation	3 months after operation			
Electrosurgery group	159	168.75± 41.43	123.62± 26.30 ^a	98.97± 23.19 ^{ab}		6.223	0.002
Curettage group	159	170.05± 42.81	136.96± 35.84 ^a	119.31± 35.33 ^{ab}			
t	-	-0.084	-3.785	-5.989		-	-
P	-	0.933	<0.001	<0.001		-	-

Note: compared with before operation, ^a $P < 0.05$. Compared with 1 month after operation, ^b $P < 0.05$.

2.3 两组患者围术期并发症、息肉复发率和妊娠率比较

电切术组息肉复发率低于刮宫术组,而临床妊娠率高于刮

宫术组($P < 0.05$),两组患者围术期并发症发生率比较无差异($P > 0.05$)。见表 3。

表 3 两组患者围术期并发症、息肉复发率和妊娠率比较 [例(%)]

Table 3 Comparison of perioperative complications, polyp recurrence rate and pregnancy rate between the two groups [n(%)]

Groups	n	Perioperative complications				Polyp recurrence rate	Clinical pregnancy rate
		Cervical stenosis	Intrauterine adhesion	Intrauterine infection	Total incidence rate		
Electrosurgery group	159	1(0.63)	2(1.26)	5(3.14)	8(5.03)	7(4.40)	120(75.47)
Curettage group	159	3(1.89)	5(3.14)	8(5.03)	16(10.06)	27(16.98)	81(50.94)
χ^2	-	0.253 ^a	0.584 ^a	0.722	2.884	13.173	20.567
P	-	0.615	0.445	0.396	0.089	<0.001	<0.001

Note: a was continuous corrected χ^2 test.

2.4 影响子宫内膜息肉合并不孕症患者术后妊娠的单因素分析

单因素分析结果显示,未妊娠组中年龄 ≥ 35 岁、多发息肉、息肉直径 ≥ 1 cm、宫角息肉、不孕时间 ≥ 4 年、术后子宫内膜厚度 ≥ 13 mm、围术期出现并发症以及术后息肉复发的患者比例明显高于妊娠组($P < 0.05$),而两组间不孕类型、术后 3 个月月经量无统计学差异($P > 0.05$)。见表 4。

2.5 影响子宫内膜息肉合并不孕症患者术后妊娠的多因素 Logistic 回归分析

以上述单因素分析(表 4)差异有统计学意义的因素为自变量,以子宫内膜息肉合并不孕症患者术后 12 个月是否妊娠为因变量。赋值见表 5。建立多因素 Logistic 回归模型,分析结果显示:年龄 ≥ 35 岁、多发息肉、息肉直径 ≥ 1 cm、宫角息肉、

术后子宫内膜厚度 ≥ 13 mm、术后息肉复发是影响子宫内膜息肉合并不孕症患者术后妊娠的危险因素($P < 0.05$)。见表 6。

3 讨论

子宫内膜息肉是指宫腔内子宫内膜腺体和基质的过度生长,大小从几毫米到几厘米不等,可能是单个病变或多个病变,甚至占据整个宫腔^[10,11]。不孕症是指一对配偶未采取任何避孕措施,有规律的性生活 12 个月未能获得临床妊娠的一种低生育力状态,多发于子宫内膜息肉患者群体,与息肉干扰精子游动、息肉影响胚胎着床、息肉组织中细胞因子毒杀精子和抑制精卵结合、息肉部位内膜腺体和基质降低孕酮的敏感性等有关^[12-14]。

表 4 影响子宫内膜息肉合并不孕症患者术后妊娠的单因素分析 [例(%)]

Table 4 Single factor analysis of postoperative pregnancy in patients with endometrial polyps combined with infertility [n(%)]

Factors		Non pregnant group (n=117)	Pregnant group (n=201)	χ^2	P
Age	≥ 35 years	58(49.57)	64(31.84)	9.833	0.002
	< 35 years	59(50.43)	137(68.16)		
Polyp type	Single	64(54.70)	149(74.13)	12.622	<0.001
	Multiple	53(45.30)	52(25.87)		
Polyp diameter	≥ 1 cm	72(61.54)	97(48.26)	5.237	0.022
	< 1 cm	45(38.46)	104(51.74)		
Polyp location	Anterior wall	32(27.35)	74(36.82)	9.736	0.021
	Posterior wall	23(19.66)	36(17.91)		
	Side wall	31(26.50)	64(31.84)		
	Uterine horn	31(26.50)	27(13.43)		
Infertility type	Secondary infertility	63(53.85)	93(46.27)	1.699	0.192
	Primary infertility	54(46.15)	108(53.73)		
Infertility time	≥ 4 years	60(51.28)	80(39.80)	3.956	0.047
	< 4 years	57(48.72)	121(60.20)		
Postoperative endometrial thickness	≥ 13 mm	68(58.12)	89(44.28)	5.668	0.017
	< 13 mm	49(41.88)	112(55.72)		
Menstrual volume at 3 months after operation	≥ 108 mL	63(53.85)	87(43.28)	3.311	0.069
	< 108 mL	54(46.15)	114(56.72)		
Perioperative complications	Yes	14(11.97)	10(4.98)	5.180	0.023
	No	103(88.03)	191(95.02)		
Postoperative polyp recurrence	Yes	19(16.24)	15(7.46)	5.966	0.015
	No	98(83.76)	186(92.54)		

表 5 变量赋值

Table 5 Variable assignment

Variable		Assignment
Independent variable	Age	0=<35 years, 1=≥ 35 years
	Polyp type	0=single, 1=multiple
	Polyp diameter	0=< 1 cm, 1=≥ 1 cm
	Polyp location	0=Non uterine horn , 1=uterine horn
	Infertility time	0=< 4 years, 1=≥ 4 years
	Postoperative endometrial thickness	0=< 13 mm, 1=≥ 13 mm
	Perioperative complications	0=no, 1=yes
	Postoperative polyp recurrence	0=no, 1=yes
Dependent variable	Whether or not pregnant 12 months after operation	0=yes, 1=no

子宫内膜息肉合并不孕症的治疗目的是去除息肉、消除症状、防止复发、促进生育结局改善,传统刮宫术在 B 超监测下进行,操作存在盲目性、难以根除和宫角刮除难度大等缺陷,容易导致息肉残留和术后复发。随着技术和设备的发展,目前宫腔镜下电切术与宫腔镜下刮宫术成为了治疗子宫内膜息肉常用

的两种手术,两种手术均能在宫腔镜直视条件下观察患者病灶,给予准确的观察、定位、切除,不仅能减少息肉残留,还能降低子宫内膜损伤,最大限度保留生育功能^[15,16]。但关于二者对子宫内膜息肉合并不孕症的疗效及对术后妊娠的影响的报道较少。本研究结果显示,两组患者手术时间、住院时间、围术期并

表 6 影响子宫内膜息肉合并不孕症患者术后妊娠的多因素 Logistic 回归分析

Table 6 Multivariate Logistic regression analysis of postoperative pregnancy in patients with endometrial polyps combined with infertility

Factors	β	SE	χ^2	P	OR(95%CI)
Constant	-2.238	0.327	46.948	<0.001	0.107
Age ≥ 35 years	0.598	0.258	5.386	0.020	1.819(1.097~3.013)
Multiple polyps	0.804	0.267	9.006	0.003	2.235(1.324~3.773)
Polyp diameter ≥ 1 cm	0.570	0.257	4.916	0.027	1.769(1.068~2.928)
Uterine horn polyps	0.767	0.316	5.896	0.015	2.153(1.159~3.999)
Infertility time ≥ 4 years	0.451	0.255	3.127	0.077	1.570(0.952~2.588)
Postoperative endometrial thickness ≥ 13 mm	0.622	0.255	5.958	0.015	1.863(1.130~3.072)
Perioperative complications	0.856	0.475	3.245	0.072	2.353(0.927~5.972)
Postoperative polyp recurrence	0.984	0.398	6.103	0.013	2.675(1.225~5.841)

发症发生率比较无差异,但电切术组术中出血量低于刮宫术组,电切术组息肉复发率低于刮宫术组;两组患者术后 12 个月子宫内膜厚度均较术前降低,且电切术组术后子宫内膜厚度低于刮宫术组;两组患者术后 1 个月、术后 3 个月月经量较术前逐渐减少,且电切术组较刮宫术组变化更明显。分析是两种手术均通过宫腔镜辅助操作,能精准定位息肉和清除,最大限度保持子宫内膜完整性,因此手术时间、住院时间和术后并发症发生率比较无差异。但刮宫术的刮除范围较大,可造成更大的子宫内损伤,引起大量出血^[17]。同时刮匙较难刮除子宫底和宫角部,不能确保完整清除所有息肉组织,刮除不彻底导致复发,而电切术的点切割深度可达 2 mm~3 mm,深层切除息肉,不仅能促进子宫内膜恢复,改善子宫内膜厚度和月经量过多症状,还能防止复发,同时电切除还能通过电极凝固实现凝血止血,减少术中出血量^[18-20]。本研究结果还显示,与刮宫术组比较,电切术组术后 12 个月临床妊娠率更高,分析是电切术组宫腔镜下电切术能更好的清除息肉,促进子宫内膜修复,使表面恢复平整和光滑,利于受精卵着床,同时宫腔镜下电切术能完整切除息肉根蒂部,保留子宫内膜,对卵巢功能干扰小,有利于患者生育能力保留,提高自然妊娠几率。

尽管在宫腔镜辅助下子宫内膜息肉清除率得以提升,患者生育结局获得较大改善,但本研究结果显示,随访 12 个月,318 例患者有 117 例患者仍未能自然妊娠,即便电切术组也有 24.53%(39/159)的患者未能自然妊娠,因此对影响此类患者术后妊娠的因素进行了进一步分析。(1)年龄:本研究结果显示,年龄 ≥ 35 岁是影响子宫内膜息肉合并不孕症术后妊娠的危险因素,分析与年龄越大生育条件越低有关。20~34 岁为女性生育力最佳状态,这期间女性身体发育完全成熟,而随着年龄增长,卵细胞会逐渐衰老,卵子染色体也会呈现衰退趋势,受外界干扰因素增加,导致妊娠率降低。研究报道,年龄 ≥ 35 岁孕妇妊娠丢失率显著增加^[21,22]。同时子宫内膜息肉患病率随着年龄增长而增加,常见于 30~50 岁人群^[23,24]。因此年龄 ≥ 35 岁的患者因子宫内膜息肉而影响妊娠的风险也增加。(2)息肉性质:本研究结果显示,多发息肉、息肉直径 ≥ 1 cm、宫角息肉是影响子宫内膜息肉合并不孕症术后妊娠的危险因素。子宫内膜息肉为

常见的局限性内膜肿物,突出于子宫腔内,附着于子宫腔内壁上,若息肉较多或直径较大,会影响子宫内膜表面的平整性、光滑性,进而影响受精卵着床,且子宫腔上两端通输卵管,较多和较大直径子宫内膜息肉可能堵塞输卵管开口部位,影响受孕,降低妊娠率;同时息肉较多或直径较大消耗较多正常组织血液供应,影响内膜血供,降低子宫内膜功能,压迫生殖系统结构,影响精子和卵子结合^[25,26]。当息肉位于宫角时,对输卵管结合部位影响较大,影响卵子在输卵管内的运行和受精卵着床,导致妊娠率降低^[27]。(3)子宫内膜厚度:子宫内膜为胚胎发育的基础,一定厚度的子宫内膜为胚胎种植必备条件,正常厚度为 8 mm~12 mm,子宫内膜过薄、过厚均会影响其容受性,导致妊娠率下降甚至不孕^[28-30]。本研究也显示,术后子宫内膜厚度 ≥ 13 mm 是子宫内膜息肉合并不孕症术后妊娠的危险因素。(4)术后息肉复发:子宫内膜息肉为不孕症发生的危险因素,术后息肉复发会增加不孕几率,导致妊娠率降低。

综上所述,宫腔镜下电切术治疗子宫内膜息肉合并不孕症的疗效较宫腔镜下刮宫术更加显著,能降低术中出血量和息肉复发率,改善子宫内膜厚度和月经量过多,增加术后妊娠率。子宫内膜息肉合并不孕症术后妊娠受年龄、息肉类型、息肉直径、息肉部位、术后子宫内膜厚度、术后息肉复发等因素影响,临床医师应根据上述因素进行干预,提升术后妊娠率。本研究样本量较少,随访时间较短,可能未分析所有术后妊娠相关影响因素,还需进一步研究。

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