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·临床研究·

不同手术方式治疗ⅠA期非小细胞肺癌的对比研究

何 望[1,2],李童心[1,2],周 瑜[2],王 东[2],黄生元[2],张小龙[2],傅 勇[1,2] (1.川北医学院临床医学院,四川 南充 637000;2.重庆市垫江县人民医院胸外科,重庆 408300)

[摘 要] **目的** 比较电视胸腔镜肺段切除术与肺叶切除术治疗早期非小细胞肺癌的临床疗效。**方法** 回顾性分析重庆市垫江县人民医院234例行电视胸腔镜下不同手术方式治疗的ⅠA期非小细胞肺癌患者的临床资料,根据手术方式的不同将患者分为肺段组和肺叶组。通过倾向性评分匹配法进行1∶1匹配平衡2组临床特征,最终每组纳入63例患者。比较2组患者手术时间、术中出血量、术后胸腔引流管留置时间、术后24 h和48 h胸腔引流量及术后住院时间等围术期指标。统计2组患者术后漏气>6 d、肺部感染、肺不张、咯血、声音嘶哑等并发症发生情况。**结果** 2组患者手术时间、术中出血量、术后24 h和48 h胸腔引流量、术后胸腔引流管留置时间及术后并发症发生率比较,差异均无统计学意义(P>0.05)。肺段组患者的术后住院时间短于肺叶组,差异具有统计学意义(P=0.003)。**结论** 对于ⅠA期非小细胞肺癌患者,电视胸腔镜肺段切除术与肺叶切除术具有相似的围术期疗效,但肺段切除术在缩短患者住院时间方面优势更明显。

[关键词] 电视胸腔镜;肺段切除术;肺叶切除术;早期非小细胞肺癌;倾向性评分匹配
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A comparative study of different surgical method for stage ⅠA non-small cell lung cancer

HE Wang[1,2], LI Tong-xin[1,2], ZHOU Yu[2], WANG Dong[2], HUANG Sheng-yuan[2], ZHANG Xiao-long[2], FU Yong[1,2] (1.Department of Clinical Medicine, North Sichuan Medical College, Nanchong Sichuan 637000, China; 2.Department of Cardiothoracic Surgery, Chongqing Dianjiang General Hospital, Chongqing 408300, China)

Abstract: Objective To compare the clinical efficacies of video-assisted thoracoscopic segmentectomy versus lobectomy for early-stage non-small cell lung cancer. **Methods** The clinical data of 234 patients with stage ⅠA non-small cell lung cancer and undergoing different surgical methods under video-assisted thoracoscopy admitted to Chongqing Dianjiang General Hospital were retrospectively analyzed, and the patients were divided into the lung segment group and the lung lobe group according to their surgical methods. The clinical characteristics of the patients in the two groups were balanced by a 1-to-1 ratio matching through the propensity score matching method, and each group finally included 63 cases. The perioperative indicators containing operation time, intraoperative blood loss, postoperative thoracic drainage tube indwelling time, thoracic drainage volumes 24 hours and 48 hours after operation and postoperative hospital stay were compared of patients between the two groups. The incidence of postoperative complications such as air leakage>6 days, pulmonary infection, atelectasis, hemoptysis, and hoarseness in the two groups was collected. **Results** There was no significant difference in the operation time, intraoperative blood loss, thoracic drainage volumes 24 hours and 48 hours after operation, postoperative thoracic drainage tube indwelling time or incidence of postoperative complications of patients between the two groups (P>0.05). The postoperative hospital stay of patients in the lung segment group was shorter than that in the lung lobe group, with statistically significant difference (P=0.003). **Conclusion** For patients with stage ⅠA non-small cell lung cancer, video-assisted thoracoscopic segmentectomy has similar perioperative efficacy to lobectomy, while segmentectomy has a more significant advantage in shortening the hospital stay.

Keywords: video-assisted thoracoscopy; segmentectomy; lobectomy; early-stage non-small cell lung cancer; propensity score matching

近年来,我国肺癌发病率及病死率逐年上升[1],随着国民生活水平及健康意识的提高,低剂量胸部螺旋计算机断层扫描在体检中的应用越来越广泛,越来越多的早期肺癌被发现[2]。而手术一直是治疗早期非小细胞肺癌的首选治疗方式,近年来电视胸腔镜微创技术迅速发展,肺部手术的并发症发生率越来越低[3-4],因此电视胸腔镜肺叶切除术成为治疗早期非小细胞肺癌的标准治疗方式[5-6],其中肺段切除术较肺叶切除术能保留更多的肺功能[7-9]。两项大型临床随机对照试验显示,针对早期的周围型非小细胞肺癌患者,行肺段切除术的无病生存期及总生存率与肺叶切除术相当[10-11],表明肺段切除术与肺叶切除术能获得相似的远期生存效果。因此,肺段切除术越来越受胸外科

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[通信作者] 傅 勇,E-mail:fuyong2006232@163.com

医师的关注[12]。但是由于肺段解剖结构的复杂性,肺段血管,尤其是肺段动脉分支较多且容易发生变异,可能会使肺段切除术中出血风险增加。因此,本研究回顾性分析电视胸腔镜下不同手术方式治疗早期非小细胞肺癌患者的临床资料,比较电视胸腔镜肺段切除术与肺叶切除术治疗早期非小细胞肺癌的围术期疗效。

1 资料与方法

1.1 临床资料

回顾性分析重庆市垫江县人民医院2019年1月至2023年1月234例采用电视胸腔镜微创手术治疗的ⅠA期非小细胞肺癌患者的临床资料,其中肺段切除术134例(肺段组),肺叶切除术100例(肺叶组)。分析患者一般资料发现,2组患者在年龄、高血压史及肿瘤直径方面有差异,于是运用倾向性评分匹配法按1∶1最近邻匹配法进行匹配,最终2组均有63例完成匹配,见表1。本研究经重庆市垫江县人民医院伦理委员会批准(20210701),患者本人及家属均对研究知情,并签署知情同意书。

纳入标准:术前胸部CT高度怀疑恶性肿瘤,磨玻璃样成分≥50%,同时肿瘤最大直径≤30 mm;术前胸部CT示肿瘤倍增时间≥400 d;无手术绝对禁忌证;行电视胸腔镜解剖性肺段切除术或肺叶切除术,术中不使用肋骨撑开器;术后病理分期为$T_{1a\sim c}N_0M_0$(ⅠA期)。排除标准:术前有辅助性化疗、放疗、靶向治疗等;术中因各种原因中转开胸;手术资料不完整。

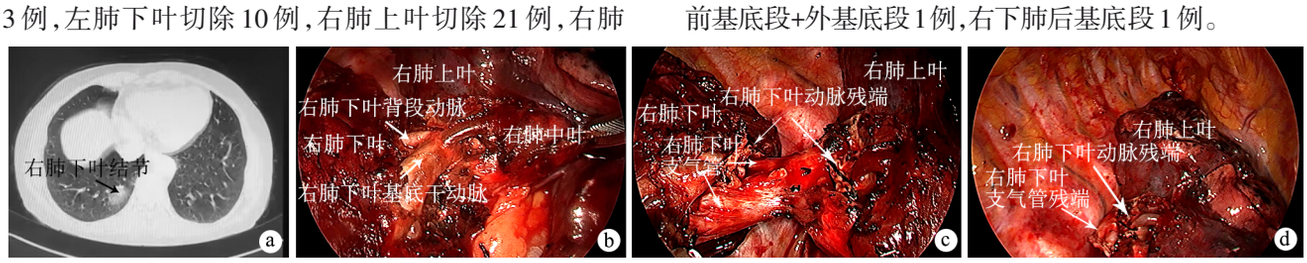
表1 患者临床特征

临床特征		匹配前				匹配后			
		肺段组(n=134)	肺叶组(n=100)	Z/χ^2	P	肺段组(n=63)	肺叶组(n=63)	$t/Z/\chi^2$	P
年龄(岁)		56(48,65)	65(54,69)	−3.920	<0.001	60.5±12.1	59.5±9.4	−0.525	0.600
性别[例(%)]	男	45(33.6)	30(30.0)	0.337	0.561	20(31.7)	19(30.2)	0.037	0.847
	女	89(66.4)	70(70.0)			43(68.3)	44(69.8)		
吸烟史[例(%)]		13(9.7)	13(13.0)	0.631	0.427	8(12.7)	6(9.5)	0.321	0.571
饮酒史[例(%)]		10(7.5)	13(13.0)	1.981	0.159	6(9.5)	5(7.9)	0.100	0.752
高血压史[例(%)]		21(15.7)	33(33.0)	9.687	0.002	16(25.4)	17(27.0)	0.041	0.839
糖尿病史[例(%)]		14(10.4)	9(9.0)	0.135	0.713	4(6.3)	5(7.9)		1.000
结核病史[例(%)]		1(0.7)	2(2.0)		0.577	1(1.6)	1(1.6)		1.000
肿瘤史[例(%)]		3(2.2)	3(3.0)		0.703	2(3.2)	2(3.2)		1.000
肿瘤直径(mm)		10(8,15)	18(15,25)	−7.778	<0.001	15(10,20)	15(12,18)	−0.035	0.972

1.2 方法

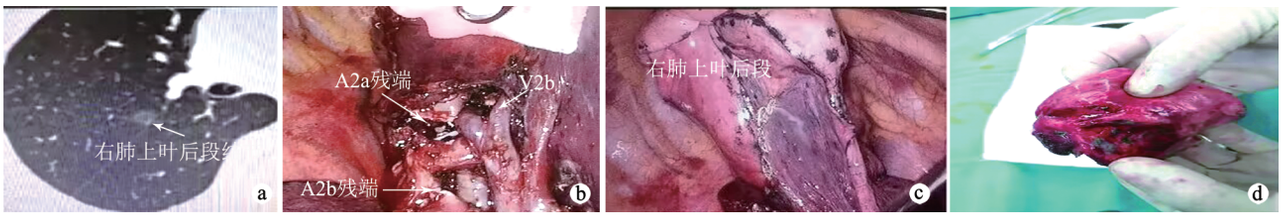
2组患者均采用全身静吸复合麻醉、双腔气管内插管,保证患侧肺塌陷完全,维持健侧单肺通气。采取健侧标准侧卧位,腋下采用腋垫垫高使患侧肋间隙变宽。于腋前线第3~5肋间作4 cm切口为操作孔,腋中线第6~8肋间作1 cm切口为镜孔。电视胸腔镜肺叶切除术:患侧肺充分萎陷后,若病变位于肺外周,则行楔形切除病变同时送冰冻明确病变良恶性;若病变位置较深靠近肺门、无法行楔形切除,则行肺叶切除,然后行系统性淋巴结清扫(图1)。其中左肺上叶切除13例,左肺下叶切除10例,右肺上叶切除21例,右肺中叶切除9例,右肺下叶切除10例。

电视胸腔镜肺段切除术:游离解剖段门区,暴露靶段的动脉、段间或段内静脉及支气管并离断,采用肺膨胀萎陷法确定靶肺段的段间平面,待段间平面显示后用腔镜吻合器离断肺段组织,然后行系统性淋巴结清扫(图2)。其中左上肺尖后段5例,左上肺固有段6例,左上肺前段2例,左上肺舌段6例,左下肺背段11例,左下肺前基底段2例,右上肺尖段7例,右上肺尖后段1例,右上肺后段10例,右上肺后段+前段1例,右上肺前段2例,右下肺背段6例,右下肺前基底段2例,右下肺前基底段+外基底段1例,右下肺后基底段1例。



a:结节位于右肺下叶;b:解剖右肺下叶动脉;c:解剖右肺下叶支气管;d:右肺下叶切除后

图1 肺叶切除术



a:结节位于右肺上叶后段;b:解剖游离右肺上叶段门区;c:右肺上叶后段膨胀萎陷后;d:切除的右肺上叶后段组织

图2 肺段切除术

1.3 观察指标

比较2组患者手术时间、术中出血量、术后胸腔引流管留置时间、术后24 h和48 h胸腔引流量、术后住院时间等围术期指标。统计患者术后漏气>6 d、肺部感染、肺不张、咯血、声音嘶哑等并发症情况。

1.4 统计学分析

采用SPSS 26.0软件进行统计学分析,正态性分析采用*K-S*检验,连续变量符合正态分布以均数±标准差($\bar{x}\pm s$)表示,组间比较采用独立样本*t*检验;呈偏态分布的连续变量以中位数(四分位间距)表示,组间比较采用*Mann-Whitney U*检验。分类变量以率(%)表示,组间比较用χ^2检验,若理论数<1或总样本量<40,采用*Fisher*确切概率法。*P*<0.05表示差异具有统计学意义。

2 结果

肺段组患者术后住院时间显著短于肺叶组(*P*<0.05)。2组患者术中出血量、手术时间、术后24 h和48 h胸腔引流量、术后胸腔引流管留置时间比较,差异均无统计学意义(*P*>0.05),见表2。2组患者术后并发症发生率比较,差异无统计学意义(*P*>0.05),见表3。

表2 2组患者围术期相关指标比较(*n*=63)

组别	手术时间(min)	术中出血量(mL)	术后胸腔引流管留置时间(d)	术后24 h胸腔引流量(mL)	术后48 h胸腔引流量(mL)	术后住院时间(d)
肺段组	160(142,195)	50(50,100)	4(3,5)	200(110,290)	150(90,250)	6(5,7)
肺叶组	176(140,217)	50(50,100)	4(3,6)	180(110,250)	180(100,250)	7(6,9)
Z	−0.991	−0.602	−1.157	−0.760	−0.723	−2.960
P	0.322	0.547	0.247	0.448	0.470	0.003

表3 2组患者并发症比较[*n*=63,例(%)]

组别	术后漏气>6 d	肺部感染	肺不张	咯血	声音嘶哑	合计
肺段组	0(0)	2(3.2)	1(1.6)	0(0)	0(0)	3(4.8)
肺叶组	2(3.2)	5(7.9)	2(3.2)	1(1.6)	0(0)	10(15.9)
P	0.496	0.440	1.000	1.000	1.000	0.079

3 讨论

电视胸腔镜肺叶切除术联合淋巴结清扫是肺癌手术治疗的标准术式,一直以来也是早期非小细胞肺癌的首选治疗方式。电视胸腔镜肺段切除术可在保证切缘阴性的同时最大程度保留患者的肺功能,所以早期的肺段切除术主要针对心肺功能较差不适合肺叶切除、身体状况较差或既往肺叶切除的肺癌患者,手术适应证较局限[13]。但一项关于临床Ⅰ期非小细胞肺癌患者的研究表明,肺段切除术的局部无复发生存率及总生存率与肺叶切除术相当[14]。且Saji等[10]的研究也表明:早期行肺段切除术的非小细胞肺癌患者总体生存情况优于肺叶切除术,并提出对于肿瘤直径较小的外周型非小细胞肺癌患者,肺段切除术可作为标准的手术方法。Aokage等[15]和Feng等[16]的研究进一步证实了肺段切除术的围术期及肿瘤学效果,肺段切除术不是姑息性手术而是根治性手术。同时,有研究推荐解剖性肺段切除术作为早期肺癌肺叶切除术的替代方法,其可获得与肺叶切除术相当的肿瘤学结果[17]。因此,2022年最新肺癌指南建议:有条件的医院可以将肺段切除术作为早期非小细胞肺癌患者的标准手术方式[18]。

本研究结果显示,对于肿瘤直径≤30 mm的早期非小细胞肺癌患者,肺叶切除术和肺段切除术在手术时间、术中出血量、术后24 h和48 h胸腔引流量、术后胸腔引流管留置时间及术后并发症方面无统计学差异,但行肺段切除术的患者术后住院时间显著缩短。这是因为患者切除的肺组织较少,手术创伤小,可以最大程度保留肺功能,术后患者能早期下床活动,从而促进身体恢复,缩短住院时间。但是肺段解剖比较复杂,肺段血管,尤其是肺段动脉分支较多,且容易出现变异,使得解剖性肺段切除术中出血可能性较大,增加手术风险。因此术中精细操作,仔细辨别患者血管和气管,以减少出血[19-22]。三维重建和3D打印技术的兴起[23-26],有助于术前掌握患者血管及支气管的走行,指导术前规划,可提高操作的精细度及准确性,减少

术中出血,减轻手术损伤,从而降低术后并发症发生率。目前我们科室已经引入三维重建技术联合肺段切除术治疗早期非小细胞肺癌,本研究中2组患者术中出血量无统计学差异,也证明了影像学手段在手术中具有重要作用。此外,电视胸腔镜肺段切除术的另一难点是段间平面的精准识别[27]。目前主要有6种段间平面识别方法,而本研究选择最有效、最简单的肺膨胀萎陷法[28-29],该方法能精准识别段间平面,指导目标靶段的完整切除,虽然手术期间需等待10~15 min,但是本研究结果显示,肺段切除术与肺叶切除术的手术时间无统计学差异。分析原因可能是通过三维重建技术联合肺段切除术,能辅助术前规划,术中快速识别靶段血管及支气管,同时在等待段间平面显示期间,继续行淋巴结清扫,因而未延长手术时间。因此,尽管肺段切除术难度大、风险高,但是影像学技术的应用及术中精细操作,不会延长手术时间。

综上,对于ⅠA期非小细胞肺癌患者,电视胸腔镜肺段切除术与肺叶切除术围术期疗效相当,且肺段切除术在缩短患者住院时间方面更具优势。但本研究为单中心、回顾性研究,且未分析生存率及复发率,有待后续进一步研究。

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