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## 经右胸三切口与左胸两切口入路对胸中段食管癌患者手术效果、淋巴结转移和远期预后的影响\*

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**摘要 目的:**探讨经右胸三切口与左胸两切口入路对胸中段食管癌患者手术效果、淋巴结转移和远期预后的影响。**方法:**回顾性分析 2013 年 2 月~2015 年 3 月期间我院收治的胸中段食管癌患者 90 例的临床资料,根据入路方式的不同将患者分为 A 组(n=44,左胸两切口入路)和 B 组(n=46,右胸三切口入路),比较两组患者手术效果、淋巴结转移、并发症和远期预后。**结果:**B 组手术时间、住院时间、术后留置胸管时间均长于 A 组,术中出血量多于 A 组( $P<0.05$ )。B 组淋巴结清扫数多于 A 组,淋巴结总转移率则低于 A 组( $P<0.05$ )。两组 1 年生存率比较差异无统计学意义( $P>0.05$ );B 组 3 年生存率、5 年生存率均高于 A 组( $P<0.05$ )。两组并发症发生率比较差异无统计学意义( $P>0.05$ )。**结论:**与左胸两切口入路相比,胸中段食管癌患者选用经右胸三切口入路,虽术中创伤大,术后恢复略慢,但该入路方式在淋巴结转移率、生存率方面有明显改善,且不增加并发症发生率。

**关键词:**右胸三切口;左胸两切口;入路;胸中段食管癌;手术效果;淋巴结转移;远期预后

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## The Effect of Three Right Thoracotomy and Two Left Thoracotomy Approach on the Operative Effect, Lymph Node Metastasis and Long-term Prognosis of Patients with Middle Thoracic Esophageal Cancer\*

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**ABSTRACT Objective:** To investigate the effect of three right thoracotomy and two left thoracotomy approach on the operative effect, lymph node metastasis and long-term prognosis of patients with middle thoracic esophageal cancer. **Methods:** The clinical data of 90 patients with middle thoracic esophageal cancer who were admitted to our hospital from February 2013 to March 2015 were retrospectively selected. According to the different approaches, the patients were divided into two groups: group A (n=44, two left thoracotomy approach) and group B (n=46, three right thoracotomy approach). The operative effect, lymph node metastasis, complications and long-term prognosis of the two groups were compared. **Results:** The operation time, hospitalization time and postoperative indwelling time of thoracic duct in group B were longer than those in group A, and the intraoperative blood volume was more than that in group A ( $P<0.05$ ). The number of lymph nodes dissected in group B was more than that in group A, and the total rate of lymph nodes metastasis was lower than that in group A ( $P<0.05$ ). There was no significant difference in 1-year survival rate between the two groups ( $P>0.05$ ). The 3-year and 5-year survival rates in group B were higher than those in group A ( $P<0.05$ ). There was no significant difference in the incidence of complications between the two groups ( $P>0.05$ ). **Conclusion:** Compared with the two left thoracotomy approach, the three right thoracotomy approach is used in the patients with esophageal cancer in the middle part of chest, which has great trauma during operation, and slow recovery after operation. However, the approach way can improve the lymph node metastasis rate and survival rate, and it did not increase the incidence of complications.

**Key words:** Right three thoracotomy; Left two thoracotomy; Approach; Middle thoracic esophageal cancer; Surgical effect; Lymph

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### 前言

食管癌作为我国常见的恶性肿瘤,每年新发人数约占全球新发总数的 50%,给患者生命安全带来严重威胁<sup>[1,2]</sup>。外科手术是当前治疗早、中期可切除食管癌的主要手段,可有效阻止疾病进展,延长患者生存率<sup>[3]</sup>。既往研究表明<sup>[4]</sup>,手术入路选择能提升手术切除率与手术治疗效果。经右胸三切口<sup>[5]</sup>与左胸两切口入路<sup>[6]</sup>是临床食管癌手术治疗常见的入路方式,但两者孰优孰劣尚无定论。本研究通过回顾性分析经右胸三切口与左胸两切口入路对胸中段食管癌患者手术效果、淋巴结转移和远期预后的影响,以期为临床食管癌术式入路方式的选择提供参考,现报道如下。

## 1 资料与方法

### 1.1 一般资料

选择 2013 年 2 月~2015 年 3 月我院收治的胸中段食管癌患者 90 例的临床资料行回顾性分析,纳入标准:(1)术前经胃镜活检组织病理检查及影像学等确诊;(2)均符合手术指征,择期给予食管癌根治术者;(3)临床资料完整,均完成随访研究者;(4)初次诊断,术前未接受其他手术、放疗或化疗等相关治疗者;(5)完成随访者。排除标准:(1)肿瘤灶位于胸中段以外者;(2)合并自身免疫缺陷者;(3)合并精神疾患,无法正常沟通交流者;(4)合并严重胸廓或脊柱畸形者;(5)妊娠期及哺乳期女性;(6)合并其他恶性肿瘤者;(7)合并心肝肾等重要脏器功能障碍者。根据不同的入路方式将患者分为 A 组(n=44,左胸两切口入路)和 B 组(n=46,右胸三切口入路),其中 A 组男 24 例,女 20 例,年龄 32~67 岁,平均(42.65±4.39)岁;平均肿瘤直径(4.26±0.74)cm;临床分期: I 期 22 例, II 期 22 例;病理分型:鳞癌 23 例,腺癌 21 例。B 组男 27 例,女 19 例,年龄 30~69 岁,平均(43.06±5.27)岁;平均肿瘤直径(3.98±0.66)cm;临床分期: I 期 24 例, II 期 22 例;病理分型:腺癌 21 例,鳞癌 25 例。两组患者一般资料对比无统计学差异(P>0.05)。我院伦理委员

会已批准本研究。

### 1.2 方法

A 组予以左胸两切口入路方式,帮助患者取右侧位,将患者手术的切口开在左胸后外侧,并由第 6 肋间逐层进胸。游离胸段食管,清扫胸部肿大淋巴结,再经膈游离胃,保留胃大弯血管弓,清扫腹野淋巴结,并将胃经食管斜管床提至胸腔,完成后进行弓上胃食管吻合术治疗。B 组予以右胸三切口入路,全麻并协助患者采取仰卧,在患者的右胸第 5 肋间前外侧开切口并进入胸腔。探查患者病情,并对全胸食管游离,对贲门周围、胃左动脉旁、肝门旁及脾动脉淋巴结进行清扫,调整患者位置为仰卧位后在上腹正中切口,对腹部的淋巴结进行清扫,游离全胃并保留血管,提胃经食管床至胸膜顶,切除大部分食管,用一次性吻合器吻合。做右侧颈部斜切口,游离颈段食管并清扫颈部淋巴结,切除大部食管,提管状胃至颈部,并用一次性吻合器吻合。两组患者术后行常规抑制胃酸、抗感染等处理。

### 1.3 观察指标

(1)记录两组围术期指标情况:术中出血量、术后留置胸管时间、手术时间、住院时间。(2)记录两组术后并发症发生率。(3)采用门诊复查或电子通讯等方式随访 5 年,随访终止指征为满 5 年或者患者死亡。记录两组患者 1 年生存率、3 年生存率、5 年生存率。(4)记录两组患者淋巴结清扫总数,胸部上纵隔及腹部淋巴结转移结果。

### 1.4 统计学方法

以 SPSS25.0 行统计分析。计量资料以( $\bar{x}\pm s$ )的形式表示,采用 t 检验。计数资料以率的形式表示,采用卡方检验。以  $\alpha=0.05$  为检验标准。

## 2 结果

### 2.1 两组围术期指标比较

B 组手术时间、住院时间、术后留置胸管时间均长于 A 组,术中出血量多于 A 组(P<0.05);详见表 1。

表 1 两组围术期指标比较( $\bar{x}\pm s$ )

Table 1 Comparison of perioperative indexes between the two groups( $\bar{x}\pm s$ )

Groups	Operation time(min)	Intraoperative blood volume (mL)	Hospitalization time (d)	Postoperative indwelling time of thoracic duc(d)
Group A(n=44)	173.27±14.25	279.28±13.20	13.91±2.35	6.32±1.27
Group B(n=46)	209.71±13.32	315.14±16.25	17.68±2.79	8.25±1.34
t	12.538	11.461	6.918	7.007
P	0.000	0.000	0.000	0.000

### 2.2 两组淋巴结转移情况比较

B 组淋巴结总转移率则低于 A 组,淋巴结清扫数多于 A 组(P<0.05);详见表 2。

### 2.3 生存率比较

两组 1 年生存率比较无差异(P>0.05);B 组 3 年生存率、5 年生存率均高于 A 组(P<0.05);详见表 3。

### 2.4 两组并发症发生率比较

两组并发症发生率比较差异无统计学意义(P>0.05);详见

表 4。

表 2 两组淋巴结清扫结果、淋巴结转移情况比较

Table 2 Comparison of the results of lymph node dissected and lymph node metastasis between the two groups

Groups	Number of lymph nodes dissected(n)	Lymph node metastasis n(%)				Total rate of lymph nodes metastasis
		Upper mediastinal lymph node metastasis	Mediastinal lymph node metastasis	Inferior mediastinal lymph node metastasis	Abdominal lymph node metastasis	
Group A(n=44)	12.39±1.74	3(6.82)	5(11.36)	5(11.36)	4(9.09)	17(38.64)
Group B(n=46)	18.62±1.93	1(2.17)	2(4.35)	1(2.17)	2(4.35)	6(13.04)
t/ $\chi^2$	16.060					7.743
P	0.000					0.005

表 3 两组患者生存率比较【例(%)】

Table 3 Comparison of survival rate between the two groups[n( % )]

Groups	1-year survival rate	3-year survival rate	5-year survival rate
Group A(n=44)	37(84.09)	27(61.36)	20(45.45)
Group B(n=46)	42(91.30)	37(80.43)	31(67.39)
$\chi^2$	1.091	3.982	4.407
P	0.296	0.046	0.036

表 4 两组并发症发生率比较【例(%)】

Table 4 Comparison of the incidence of complications between the two groups[n( % )]

Groups	Arrhythmia	Recurrent laryngeal nerve injury	Pneumonia	Anastomotic leakage	Total incidence rate
Group A(n=44)	2(4.55)	1(2.27)	1(2.27)	2(4.55)	6(13.64)
Group B(n=46)	2(4.35)	2(4.35)	3(6.52)	1(2.17)	8(17.39)
$\chi^2$					0.241
P					0.623

### 3 讨论

胸中段食管与诸多重要组织器官毗邻,故胸中段食管癌具有向腹、胸、颈三野淋巴结转移的临床特点<sup>[7-9]</sup>。目前,手术切除是治疗胸中段食管癌的有效方式,但食管癌术后约有 50% 的患者死于局部淋巴结转移或局部复发<sup>[10-12]</sup>。食管癌最常见的转移途径为淋巴结转移因此,规范化清除食管引流区域淋巴结在食管癌治疗中至关重要<sup>[13-15]</sup>。左胸两切口入路是现临床常用的入路方式,术中无需变换体位,仅需 2 个切口即可快速进入胸腔<sup>[16-18]</sup>。但此类入路方式受术野、胸主动脉弓及其分支阻挡、手术操作空间等因素的影响,淋巴结难以得到彻底清扫<sup>[19]</sup>。同时左胸两切口入路可能影响术后肺功能而增加并发症发生风险。经右胸三切口入路遵循手术最佳显露原则进行手术入路以及手术体位设计,更符合食管的解剖结构特征,近年来受到了不少外科医师的喜爱<sup>[20-22]</sup>,但经右胸三切口入路也存在术中创伤大、术后恢复慢等弊端。

本次研究结果显示,与左胸两切口入路者相比,经右胸三切口入路者的手术时间、住院时间、术后留置胸管时间较长,术

中出血量较多,主要是因为右胸三切口入路切口更多,术中创伤大,出血量多,一定程度上影响患者术后恢复<sup>[23,24]</sup>。同时,两组并发症发生率比较无差异,而蔡恒等<sup>[25]</sup>学者研究结果却显示,胸中段食管癌患者选用左胸两切口入路,可有效减少并发症发生率。与本次研究结果不一致,可能是因为患者个体间存在差异性所致,或是本研究样本量偏少,可能导致结果数据存在一定的误差,后续报道将扩大样本量以获取更为准确的数据。食管癌外科手术根治的彻底与否,直接影响到术后生存率,而淋巴结清扫的彻底性同样是影响食管癌外科预后的决定因素。本研究中, B 组淋巴结清扫数多于 A 组,淋巴结总转移率则低于 A 组, B 组 3 年生存率、5 年生存率均高于 A 组,提示与左胸两切口入路相比,胸中段食管癌患者选用经右胸三切口入路,能有效清除淋巴结,转移率低,远期生存率高。主要原因可能为经右胸三切口入路可彻底暴露上纵隔,在进行全纵隔以及腹部的清扫的同时,还可彻底清扫气管食管旁喉返神经节等区域<sup>[26-28]</sup>。而左胸入路往往会由于左侧主动脉弓被阻挡,清扫腹腔的淋巴结范围会相对较窄,加之纵隔无法彻底暴露,无法达到彻底清扫的标准,更有利于降低复发转移率、提高生存率<sup>[29,30]</sup>。

综上所述,与左胸两切口入路相比,胸中段食管癌患者选用经右胸三切口入路,虽术中创伤大,术后恢复略慢,但该入路方式在淋巴结转移率、生存率方面有明显改善,且不增加并发症发生率。

#### 参考文献(References)

- [1] Chen P, Zhao X, Zhou F, et al. Characterization of 500 Chinese patients with cervical esophageal cancer by clinicopathological and treatment outcomes[J]. *Cancer Biol Med*, 2020, 17(1): 219-226
- [2] 蔡宁,刘振球,索晨,等.食管癌遗传易感基因多态性的研究进展[J]. *癌症进展*, 2018, 16(11): 1331-1334, 1351
- [3] Huang S, Guo Y, Li Z, et al. A systematic review of metabolomic profiling of gastric cancer and esophageal cancer [J]. *Cancer Biol Med*, 2020, 17(1): 181-198
- [4] 侯安兴,陈飞,杨劲松,等.不同手术入路途径对胸中段老年食管癌患者 VEGF-HIF $\alpha$ -PTEN 表达水平及肿瘤转移的影响[J]. *中南医学科学杂志*, 2020, 48(2): 214-217
- [5] Li X, Wang W, Zhou Y, et al. Efficacy comparison of transcervical video-assisted mediastinoscopic lymphadenectomy combined with left transthoracic esophagectomy versus right transthoracic esophagectomy for esophageal cancer? treatment [J]. *World J Surg Oncol*, 2018, 16(1): 25
- [6] Wang ZQ, Wang WP, Yuan Y, et al. Left thoracotomy for middle or lower thoracic esophageal carcinoma: still Sweet enough? [J]. *J Thorac Dis*, 2016, 8(11): 3187-3196
- [7] 何刚,王洪斌,刘海林,等.右胸入路三野清扫淋巴结治疗中晚期胸中段食管癌的疗效及预后观察 [J]. *现代生物医学进展*, 2017, 17(29): 5728-5731
- [8] Karakasheva TA, Kijima T, Shimonosono M, et al. Generation and Characterization of Patient-Derived Head and Neck, Oral, and Esophageal Cancer Organoids [J]. *Curr Protoc Stem Cell Biol*, 2020, 53(1): e109
- [9] Zhang T, Jiang H, Ming CY, et al. Influence of different kinds of surgical resection on operation-related clinical indexes, inflammatory cytokines and complications in elderly patients with esophageal cancer[J]. *Pak J Med Sci*, 2020, 36(3): 532-537
- [10] Then EO, Lopez M, Saleem S, et al. Esophageal Cancer: An Updated Surveillance Epidemiology and End Results Database Analysis [J]. *World J Oncol*, 2020, 11(2): 55-64
- [11] Hu B, Jia F, Zhou H, et al. Risk Factors Associated with Esophageal Fistula after Radiotherapy for Esophageal Squamous Cell Carcinoma [J]. *J Cancer*, 2020, 11(12): 3693-3700
- [12] Bao J, Wu Y, Wang L, et al. The role of 6-phosphofructo-2-kinase/fructose-2,6-bisphosphatase-3 in esophageal squamous cell carcinoma[J]. *Medicine (Baltimore)*, 2020, 99(15): e19626
- [13] Tanaka S, Abe H, Ariyoshi R, et al. The number and size of Lugol-voiding areas were reduced by pneumatic dilation in a patient with achalasia and esophageal cancer[J]. *JGH Open*, 2019, 4(2): 309-311
- [14] Yoshizaki T, Obata D, Ueda C, et al. Feasibility of the lidocaine injection method during esophageal endoscopic submucosal dissection[J]. *JGH Open*, 2019, 4(2): 251-255
- [15] Kato M, Hayashi Y, Uema R, et al. Additional effect of magnifying narrow-band imaging on estimating the invasion depth of superficial esophageal cancer[J]. *JGH Open*, 2019, 4(2): 178-184
- [16] Fukuda H, Ishihara R, Shimamoto Y, et al. Effect of horizontal margin status and risk of local recurrence after endoscopic submucosal dissection for superficial esophageal cancer [J]. *JGH Open*, 2019, 4(2): 160-165
- [17] Sdralis E, Davakis S, Syllaios A, et al. Minimally invasive esophagectomy for esophageal cancer in octogenarians. Clinical and oncological outcomes[J]. *J BUON*, 2020, 25(1): 520-526
- [18] Jung HK, Tae CH, Lee HA, et al. Treatment pattern and overall survival in esophageal cancer during a 13-year period: A nationwide cohort study of 6,354 Korean patients [J]. *PLoS One*, 2020, 15(4): e0231456
- [19] Chen X, Liu S, Chen P, et al. Application of pleural flaps in laparoscopic-thoracoscopic esophagectomy for esophageal cancer[J]. *J Thorac Dis*, 2020, 12(3): 973-979
- [20] Park S, Kang CH, Lee HJ, et al. Prevalence and risk factors of reflux after esophagectomy for esophageal cancer[J]. *J Thorac Dis*, 2020, 12(3): 558-567
- [21] Hu J, Chen D, Wu S, et al. Prognostic significance of neutrophil-to-lymphocyte ratio in middle thoracic esophageal squamous cell carcinoma patients undergoing radical esophagectomy [J]. *J Thorac Dis*, 2020, 12(3): 363-374
- [22] Ahmadi N, Mbuagbaw L, Hanna WC, et al. Development of a clinical score to distinguish malignant from benign esophageal disease in an undiagnosed patient population referred to an esophageal diagnostic assessment program[J]. *J Thorac Dis*, 2020, 12(3): 191-198
- [23] Han WH, Eom BW, Yoon HM, et al. Spade-Shaped Anastomosis Following a Proximal Gastrectomy Using a Double Suture to Fix the Posterior Esophageal Wall to the Anterior Gastric Wall (SPADE Operation): Case-Control Study of Early Outcomes [J]. *J Gastric Cancer*, 2020, 20(1): 72-80
- [24] Zhao S, Qi W, Chen J. Competing risk nomogram to predict cancer-specific survival in esophageal cancer during the intensity-modulated radiation therapy era: A single institute analysis [J]. *Oncol Lett*, 2020, 19(5): 3513-3521
- [25] 蔡恒.经右胸入路食管癌根治术治疗食管中下段癌的疗效及安全性分析[J]. *实用癌症杂志*, 2017, 32(11): 1817-1819
- [26] Fujiwara H, Shiozaki A, Konishi H, et al. Perioperative outcomes of single-port mediastinoscope-assisted transhiatal esophagectomy for thoracic esophageal cancer[J]. *Dis Esophagus*, 2017, 30(10): 1-8
- [27] Li C, Ge N, Shen Y, et al. Exclusive right thoracic approach for esophagus surgery[J]. *Thorac Cancer*, 2017, 8(5): 543-545
- [28] Linson J, Latzko M, Ahmed B, et al. Minimally invasive Ivor-Lewis esophagectomy for esophageal cancer with right aortic arch [J]. *J Gastrointest Oncol*, 2017, 8(1): E1-E2
- [29] Rodrigues C, Cabral D, Mota L, et al. Bilateral Recurrent Spontaneous Pneumothorax as a Late Consequence of Oesophageal Surgery: Case Report [J]. *Rev Port Cir Cardiorac Vasc*, 2017, 24(3-4): 142
- [30] Shishido Y, Miyata H, Sugimura K, et al. Successful resection after neoadjuvant chemotherapy for esophageal cancer with posterior thoracic paraaortic lymph node metastasis: a case report and literature review[J]. *Gen Thorac Cardiovasc Surg*, 2017, 65(9): 542-548