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·临床研究·

右胸和左胸入路食管癌切除术治疗老年胸中下段食管鳞癌的疗效比较

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[摘 要] **目的** 探讨右胸和左胸入路食管癌切除术治疗老年胸中下段食管鳞癌的临床疗效。**方法** 选择2011年10月至2014年9月我院收治的70岁以上因胸中下段食管癌接受食管癌切除术的患者进行回顾性分析。通过1∶1的倾向得分匹配法(PSM)分析后,匹配纳入125例老年胸中下段食管鳞癌患者,其中右胸入路组为62例,左胸入路组为63例。比较经右胸和左胸食管癌切除术对老年胸中下段食管癌患者的术后特征、预后及术后并发症的影响。**结果** 右胸入路组清除淋巴结(23.73±13.70)个,左胸入路组清除淋巴结(14.83±9.01)个,差异具有统计学意义($P<0.05$);右胸入路组手术时间(5.22±2.01)h,较左胸入路组手术时间(3.23±0.82)h明显延长,差异具有统计学意义($P<0.05$);右胸入路组术后8例转入ICU(12.9%),高于左胸入路组的2例(3.17%),差异有统计学意义($P<0.05$);但2组患者围手术期死亡率及二次手术率差异无统计学意义($P>0.05$)。右胸入路组术后肺炎、呼吸衰竭和亚临床吻合口瘘发生率分别为22.58%、12.90%、14.52%,高于左胸入路组的9.52%、1.59%、1.59%,差异具有统计学意义($P<0.05$);手术入路对2组患者的其他并发症发生率的影响差异无统计学意义($P>0.05$)。术后住院时间右胸入路组与左胸入路组差异无统计学意义;右胸入路组5年无病生存率为35.48%,明显高于左入路组的19.04%,差异具有统计学意义($P<0.05$)。此外,右胸入路组患者的5年总生存率41.93%,高于左胸入路组(23.80%),差异具有统计学意义($P<0.05$)。**结论** 与左胸入路比较,右胸入路食管癌切除术,淋巴结清扫较为彻底;虽然增加了围手术期并发症,但并未增加围手术期死亡率,且远期生存率获益,故右胸入路应是高龄胸中下段食管癌优选的手术方式。

[关键词] 手术入路;食管鳞状细胞癌;老年

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Efficacy comparison of right thoracic approach and left thoracic approach in esophagectomy of the elderly with middle and lower esophageal squamous cell carcinoma

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Abstract: Objective To explore the clinical efficacy of right thoracic approach and left thoracic approach in esophagectomy of the elderly with middle and lower esophageal squamous cell carcinoma. **Methods** A retrospective analysis was performed on patients with middle and lower esophageal squamous cell carcinoma, who were aged above 70 years and admitted into our hospital for esophagectomy from October 2011 to September 2014. Through 1∶1 propensity score matching (PSM) analysis, 125 elderly patients with middle and lower esophageal squamous cell carcinoma were included; of these, 62 cases were divided into the right thoracic approach group and 63 cases were divided into the left thoracic approach group for comparing the effect on the postoperative characteristics, prognosis and postoperative complications between right thoracic approach and left thoracic approach in esophagectomy of elderly patients with middle and lower esophageal squamous cell carcinoma. **Results** The lymph nodes excised in the right thoracic approach group and the left thoracic approach group were (23.73±13.70) and (14.83±9.01) respectively; thus the difference between them was statistically significant ($P<0.05$). The operation time of the right thoracic approach group was (5.22±2.01) hours, significantly longer than that of the left thoracic approach group (3.23±0.82) hours; and the difference between them was statistically significant ($P<0.05$). After the operation, 8 cases of the right thoracic approach group and 2 cases of the left thoracic approach group (3.17%) were transferred to ICU (12.9%); and the difference between them was statistically significant ($P<0.05$). However, the differences in perioperative mortality and second operation rate between the two groups were not statistically significant ($P>0.05$). The incidence rate of postoperative pneumonia, respiratory failure and subclinical anastomotic leakage in the right thoracic approach group was 22.58%, 12.90% and 14.52% respectively, and this figure was 9.52%, 1.59% and 1.59% in the left thoracic approach group; thus the difference between them was statistically significant ($P<0.05$). The difference in effect of operative approach on the incidence of other complications in the two groups was not statistically significant ($P>0.05$). The difference in postoperative

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hospital stay between the right thoracic approach group and the left thoracic approach group was not statistically significant. The 5-year disease-free survival in the right thoracic approach group and the left thoracic approach group was 35.48% and 19.04% respectively, and the difference between them was statistically significant ($P<0.05$). In addition, the 5-year overall survival of patients in the right thoracic approach group was 41.93%, which was higher than that of the left thoracic approach group (23.80%). Thus, the difference between them was statistically significant ($P<0.05$). **Conclusion** In esophagectomy, lymph nodes can be excised more thoroughly through the right thoracic approach rather than the left thoracic approach. Despite of more probably perioperative complications, the right thoracic approach does not increase the perioperative mortality and is beneficial to the long-term survival. Therefore, the right thoracic approach should be the preferred approach for esophagectomy of the elderly with middle and lower esophageal squamous cell carcinoma.

Keywords: operative approach; esophageal squamous cell cancer; the elderly

迄今为止,手术仍然是食管鳞状细胞癌(esophageal squamous cell carcinoma,ESCC)的关键治疗方法[1]。随着老龄化的加剧和更长的预期寿命,老年 ESCC 患者数量增加。相较于年轻患者而言,老年患者的身体状况较差、并发症多,通常需要外科医生选择较保守的外科手术进行治疗。与开放性食管癌切除术相比,微创食管癌切除术具有较低的并发症发生率和明显的生存获益率,可能是老年 ESCC 患者的优选技术[2],但若患者曾接受胸、腹手术或淋巴结清扫困难,则优先选择开放手术[3]。采取 Ivor-Lewis 或 Sweet 术式治疗食管癌是迄今为止胸中下段 ESCC 最常用的开放手术方式[4]。然而,经右胸入路和左胸入路的食管癌切除各有利弊:一方面,虽然 Sweet 食管切除术已被应用于胸部 ESCC 治疗中,但其难以解剖右上纵隔淋巴结;另一方面,虽然 Ivor-Lewis 食管癌切除术可以提供相对彻底的淋巴结清扫,但是其潜在的围手术期并发症的风险更高,在老年患者中的应用较少[5]。而在临床实践中没有一个有利于老年患者治疗方法的选择标准或指导方针。因此,本文根据对术后并发症和预后影响的风险评估,进行倾向匹配研究,比较老年胸中下段 ESCC 患者经右胸入路和左胸入路行食管癌切除术的疗效,以期为临床提供参考。

1 资料与方法

1.1 临床资料

选择 2011 年 10 月到 2014 年 9 月我科收治的 70 岁以上接受食管癌切除术治疗胸段中下段食管癌的患者,并通过 1∶1 的倾向得分匹配法(PSM)[6]分析后匹配纳入 125 例老年胸中下段食管鳞癌患者进行回顾性分析,其中右胸入路组为 62 例,左胸入路组为 63 例。2 组患者的基本资料及临床病理特征比较,差异均无统计学意义($P>0.05$),具有可比性,见表 1、表 2。

表 1 2 组患者的基本资料比较(例)

手术入路	n	吸烟	饮酒	心血管疾病(高血压/冠心病/心律失常)	其他合并疾病(COPD/结核病/脑梗塞/糖尿病)
右胸入路	62	36	13	12/2/0	1/4/3/1
左胸入路	63	37	15	14/1/1	1/5/3/0

表 2 2 组患者的临床病理特征比较

手术入路	n	年龄(岁)	性别(男/女,例)	肿瘤位置(中段/下段,例)	分化程度(高/中/低分化,例)	病理 T 分期(T1/T1/T2/T4a,例)	病理 N 分期(pN0/pN1/pN2/pN3,例)	病理分期(pI/pII/pIII,例)
右胸入路	62	73.7±1.1	45/17	46/16	8/45/9	5/21/35/1	34/15/9/4	9/28/25
左胸入路	63	73.5±1.8	45/18	48/15	8/46/9	6/21/34/2	30/21/8/4	10/27/26

1.2 方法

左胸入路手术步骤:全麻气管插管后,患者右侧卧位,经左后外侧切口第 6 肋间进胸探查,切开食管表面纵隔胸膜,探查食管肿瘤能切除后,切开膈肌,常规游离胃并清扫腹腔内各组淋巴结。在胃食管连接处离断胃食管,制作管胃备用。游离胸部食管并清扫胸腔内各组淋巴结,结扎胸导管。管状胃与食管在距肿瘤上缘 5 cm 以远行机械吻合。常规吻合口减张,置放胃管及营养管,彻底止血后关膈肌,置放胸引管,关胸[7]。

右胸入路手术步骤:全麻双腔气管插管后,患者仰卧位,取上腹部正中切口入腹,游离胃并清扫腹腔内各组淋巴结,贲门处离断食管制作管状胃,行空肠造瘘后关腹。改为左侧卧位,经右后外侧切口第 5 肋间入胸腔,游离食管、离断奇静脉、清扫各组淋巴结,管状胃顺膈肌食管裂孔提入胸腔,胃与食管在距肿瘤上缘 5 cm 以远行机械吻合(胸顶)[8]。

1.3 观察指标及疗效标准

回顾性分析临床病理特征,包括年龄、性别、吸烟

和酒精滥用史,术前合并症,手术方式、肿瘤位置、肿瘤级别、病理分期等。其中,术前合并症包括:高血压、冠心病(CHD)、心律失常、慢性阻塞性肺疾病(COPD)、糖尿病、结核病、脑梗死、胃溃疡,肝炎、结石、风湿病等。病理分期参照美国癌症联合委员会的第7版[9]进行分期。

术后肺部并发症包括肺炎、呼吸衰竭或急性呼吸窘迫综合征(ARDS)。记录心律失常和心力衰竭等心血管并发症。记录胃肠道并发症,如临床吻合口瘘、亚临床吻合口瘘等,临床吻合口瘘经上消化造影或亚甲蓝检验证实,具有明显临床症状;而亚临床吻合口瘘被认定为吻合口周围的限制性渗漏,无脓毒血症,只需术后给予肠内营养便能促进愈合。记录其他并发症,如术后出血、胸腔积液、伤口感染、乳糜胸、声音嘶哑、胃排空延迟等。术后死亡定义为术后90 d内的死亡[10]。

1.4 统计学分析

通过使用STATA 12.0软件(Stata Corp.,College Station,TX,USA)的最近邻匹配方法进行1∶1 PSM的特征[11],包括年龄、性别、肿瘤位置、病理T期、病理N期、吸烟、酒精消耗,术前合并症,手术方法等。统计学分析使用SPSS 16.0软件包进行,计量资料采用t检验,计数资料采用χ^2检验,$P<0.05$为差异有统计学意义。

2 结果

2.1 术后特征及预后的影响比较

右胸入路食管癌切除术切除淋巴结较左胸入路彻底,2组间差异具有统计学意义($P<0.05$)。右胸入路手术时间较左胸入路明显延长,2组间差异具有统计学意义($P<0.05$);2组患者围手术期死亡率及二次手术率差异无统计学意义($P>0.05$)。右胸入路组患者5年无病生存率为35.48%,明显高于左入路组患者的19.04%,组间差异具有统计学意义($P<0.05$);此外,右胸入路组患者的5年总生存率为41.93%,高于左胸入路组的23.80%,组间差异具有统计学意义($P<0.05$),见表3。

2.2 术后并发症的影响比较

右胸入路组术后肺炎、呼吸衰竭和亚临床吻合口瘘发生率均较左胸入路组高;手术入路对2组患者的其他并发症发生率的影响差异无统计学意义($P>0.05$),见表4、表5。

表3 2组患者的术后特征及手术预后影响比较

手术方式	n	手术时间(h)	淋巴结清扫(个)	术后转入ICU[例(%)]	围术期死亡[例(%)]	二次手术[例(%)]	术后住院时间(d)	5年无复发[例(%)]	5年生存[例(%)]
右胸入路	62	5.22±2.01	23.73±13.70	8(12.9)	4(6.45)	1(1.61)	12.1±2.1	22(35.48)	26(41.93)
左胸入路	63	3.23±0.82	14.83±9.01	2(1.59)	2(3.17)	1(1.59)	11.5±1.7	12(19.04)	15(23.80)
P		0.026	0.005	0.045	0.66	1.00	0.87	0.039	0.031

表4 2组患者术后心、肺、胃肠道并发症比较[例(%)]

手术方式	n	心脏并发症		肺部并发症			胃肠道并发症		
		心律失常	心功能不全	肺炎	ARDS	呼吸衰竭	吻合口瘘	亚临床吻合口瘘	胃排空障碍
右胸入路	62	5(8.06)	4(6.45)	14(22.58)	1(1.61)	8(12.90)	4(6.45)	9(14.52)	2(3.22)
左胸入路	63	6(9.52)	3(4.76)	6(9.52)	1(1.59)	2(1.59)	2(3.17)	1(1.59)	1(1.59)
P		0.77	0.98	0.046	1.00	0.045	0.67	0.020	0.98

表5 2组患者术后其他并发症比较[例(%)]

手术方式	n	伤口感染	声嘶	乳糜胸	胸腔积液	术后胸腔出血
右胸入路	62	3(4.84)	3(4.84)	6(9.67)	9(14.52)	1(1.61)
左胸入路	63	2(3.17)	1(1.59)	4(6.34)	6(9.52)	1(1.59)
P		0.98	0.60	0.72	0.39	1.00

3 讨论

尽管对老年患者的定义不同而研究结果有所不同,但年龄增加是食管鳞癌患者手术高风险、术后复发的不良因素[11-12]。在本研究中,我们将老年人定义为70岁以上,与大多数已发表研究中对"老"的标准相符合[13-16]。在我们的癌症中心治疗的ESCC患者的平均年龄为63岁,70岁以上的患者可能会增加肺部并发症的发生率,甚至更高的围手术期死亡率。在目前的临床治疗中,开放手术已成为食管癌切除术的基础。虽然,胸腔镜食管癌切除术住院时间较短,术后并发症发生率较低,术后恢复和总体生存率提高,可能是一般ESCC患者的优选手术方式[17-19]。然而,对老年患者而言,胸腔镜食管癌切除术较开放性手术,能否降低围手术期风险及远期生存是否获益仍不确定。另外,如果患者具有胸部、腹部手术史或淋巴结清扫困难,则可

以优选开放手术[20-21]。因此本研究旨在探讨右胸和左胸入路食管癌切除术治疗老年胸中下段食管鳞癌的临床疗效,从而为老年胸中下段食管鳞癌治疗手段的选择提供更加有力的依据。

本研究中左胸入路食管癌切除术后食管癌患者5年总生存率为23.80%,与以前的研究结果相当[22-24]。与左胸入路食管癌切除术相比,右胸入路方式术后并发症发生率较高,也被认为是一种更为"侵略性"的手术方式[25-26];然而,左侧入路手术方式对上纵隔淋巴结的解剖暴露有限,这可能增加术后癌症的复发并缩短术后患者的生存期。故两种手术方式对老年人来讲各有利弊。因此,右胸入路和左胸入路两种方法如何选择的临床决策是根据外科医生的经验来平衡安全性和有效性的过程,但这样的决策可能是非常主观和混乱的。尽管如此,目前少有对老年 ESCC 患者左胸与右胸入路食管癌切除方法比较的研究报道。最近,有研究比较 Ivor-Lewis 和 Sweet 食管切除术在随机临床试验中的作用,早期结果显示 Ivor-Lewis 具有较低的术后并发症发生率和更多的淋巴结清扫率,是所有年龄组患者的更好选择[27-28]。另有研究比较了左侧双切口食管癌切除术和 Ivor-Lewis 食管切除术对胸中段 ESCC 患者的治疗效果,发现两种方法在总体5年生存率方面差异无统计学意义[29-30]。本研究中统计分析显示,右胸入路食管癌切除术可以被接受为老年患者的有益选择,因为其可更好地进行淋巴结清扫,并延长无病生存期以及更长的总体生存期。尽管右胸入路手术方式患者的肺炎、呼吸衰竭和亚临床吻合口瘘发生率较左胸入路高,但并没有增加术后吻合口瘘的发生机率和围术期死亡率。右胸入路和左胸入路两种手术方式之间的区域淋巴结清扫的差异可能解释生存的差异。本研究中 1∶1 PSM 研究有效平衡了生存率比较中的混杂因素,故获得结果较为可靠。因此右胸入路食管癌切除术可能是治疗老年胸中下段食管鳞癌更优的手术方式。

综上,本研究通过回顾性分析提供了在老年胸中下段 ESCC 患者中应用右胸入路食管癌切除术的有效性和可耐受的术后并发症的证据,右胸入路食管癌切除术,淋巴结清扫较为彻底;虽然增加了围手术期并发症,但并未增加围手术期死亡率,且远期生存率获益;故临床上在对胸中下段食管鳞癌的老年患者选择术式时可优先选择右胸入路方式。

[参考文献]

[1] Murakami Y, Takahashi I, Nishibuchi I, et al. Long-term results of definitive concurrent chemoradiotherapy for patients with esophageal submucosal cancer(T1bN0M0)[J]. Int J Clin Oncol, 2015, 20(5): 897-904. doi: 10.1007/s10147-015-0819-2.

[2] Zhang Y, Bergman JJ, Xue L, et al. Preliminary study on efficacy of radiofrequency ablation combined with endoscopic resection for eradicating widespread early non-flat type esophagealsquamouscell carcinoma[J]. Zhonghua wei chang wai ke za zhi, 2015, 18(9): 875-880.

[3] Jansson C, Oh JK, Martinsen JI, et al. Occupation and risk of oesophageal adenocarcinoma and squamous-cell carcinoma: the nordic occupational cancer study[J]. Int J Cancer, 2015, 137(3): 590-597. doi: 10.1002/ijc.29409.

[4] Kang M, Sang Y, Gu H, et al. Long noncoding RNAs POLR2E rs3787016 C/T and HULC rs7763881 A/C polymorphisms are associated with decreased risk of esophageal cancer[J]. Tumour Biol, 2015, 36(8): 6401-6408. doi: 10.1007/s13277-015-3328-z.

[5] Zhang X, Xu Y, He C, et al. Elevated expression of CCAT2 is associated with poor prognosis in esophagealsquamouscell carcinoma[J]. J Surg Oncol, 2015, 111(7): 834-839. doi: 10.1002/jso.23888.

[6] Li H, Zhen H, Han L, et al. Association between the genetic variations within TBX21 gene promoter and the clinicopathological characteristics of esophagealsquamouscell carcinoma in a high-risk Chinese population[J]. Tumour Biol, 2015, 36(5): 3985-3993. doi: 10.1007/s13277-015-3042-x.

[7] Oya H, Koike M, Iwata N, et al. Feeding duodenostomy decreases the incidence of mechanical obstruction after radical esophageal cancer surgery[J]. World J Surg, 2015, 39(5): 1105-1110. doi: 10.1007/s00268-015-2952-5.

[8] Liu CJ, Cheng JC, Lee JM, et al. Patterns of nodal metastases on 18F-FDG PET/CT in patients with esophageal squamous cell carcinoma are useful to guide treatment planning of radiotherapy[J]. Clin Nucl Med, 2015, 40(5): 384-389. doi: 10.1097/RLU.0000000000000714.

[9] Hu WS, Liu ZJ, Zhang JB, et al. Risk patterns of subsequent primary cancers following esophagectomy in early-stage thoracic esophagealsquamouscell cancer patients[J]. Tumori, 2015, 101(3): 328-333. doi: 10.5301/tj.5000285.

[10] Fakhrian K, Ordu AD, Nieder C, et al. Outcomes of patients with squamouscell carcinoma of esophagus who did not receive surgical resection after neoadjuvant radiochemotherapy[J]. Tumori, 2015, 101(3): 263-267.

[11] Shiozaki A, Fujiwara H, Murayama Y, et al. Perioperative outcomes of esophagectomy preceded by the laparoscopic transhiatal approach for esophageal cancer[J]. Dis Esophagus, 2014, 27(5): 470-478. doi: 10.1111/j.1442-2050.2012.01439.x.

[12] Markar SR, Schmidt H, Kunz S, et al. Evolution of standardized clinical pathways: refining multidisciplinary care and process to improve outcomes of the surgical treatment of esophageal cancer[J]. J Gastrointest Surg, 2014, 18(7): 1238-1246. doi: 10.1007/s11605-014-2520-6.

[13] Ida S, Morita M, Hiyoshi Y, et al. Surgical resection of hypopharynx and cervical esophageal cancer with a history of esophagectomy for thoracic esophageal cancer[J]. Ann Surg Oncol, 2014, 21(4): 1175-1181. doi: 10.1245/s10434-013-3454-z.

[14] Davies AR, Sandhu H, Pillai A, et al. Surgical resection strategy and the influence of radicality on outcomes in oesophageal cancer[J]. Br J

Surg,2014,101(5):511 - 517. doi:10.1002/bjs.9456.

[15] Amini A,Ajani J,Komaki R,et al. Factors associated with local-regional failure after definitive chemoradiation for locally advanced esophageal cancer[J]. Ann Surg Oncol,2014,21(1):306 - 314. doi:10.1245/s10434 - 013 - 3303 - 0.

[16] Chao YK,Tseng CK,Wen YW,et al. Using pretreatment tumor depth and length to select esophagealsquamouscell carcinoma patients for nonoperative treatment after neoadjuvant chemoradiotherapy[J]. Ann Surg Oncol,2013,20(9):3000 - 3008. doi:10.1245/s10434 - 013 - 2962 - 1.

[17] Kim K,Park JS,Seo H. Early outcomes of video-assisted thoracic surgery(VATS) Ivor Lewis operation for esophageal squamous cell carcinoma:the extracorporeal anastomosis technique[J]. Surg Laparosc Endosc Percutan Tech,2013,23(3):303 - 308. doi:10.1097/SLE.0b013e31828b8841.

[18] Berry MF,Zeyer-Brunner J,Castleberry AW,et al. Treatment modalities for T1N0 esophagealcancers: a comparative analysis of local therapy versus surgical resection[J]. J Thorac Oncol,2013,8(6):796 - 802. doi:10.1097/JTO.0b013e3182897bf1.

[19] van der Schaaf M,Rutegård M,Lagergren P. The influence of surgical factors on persisting symptoms 3 years after esophageal cancer surgery: a population-based study in Sweden[J]. Ann Surg Oncol,2013,20(5):1639 - 1645. doi:10.1245/s10434 - 012 - 2690 - y.

[20] Henry MA,Lerco MM,Naresse LE,et al. Outcome of superficial squamouscell carcinoma of the esophagus: a clinicopathological study[J]. Acta Cir Bras,2013,28(5):373 - 378.

[21] Martin JT,Worni M,Zwischenberger JB,et al. The role of radiation therapy in resected T2 N0 esophageal cancer:a population-based analysis[J]. Ann Thorac Surg,2013,95(2):453 - 458. doi:10.1016/j.athoracsur.2012.08.049.

[22] Vrba R,Aujesky R,Hrabalova M,et al. Esophagectomy for esophageal carcinoma-surgical complications and treatment[J]. Biomed Pap Med Fac Univ Palacky Olomouc Czech Repub,2012,156(3):278 - 283. doi:10.5507/bp.2012.019.

[23] Rutegård M,Lagergren P,Rouvelas I,et al. Surgical complications and long-term survival after esophagectomy for cancer in a nationwide swedish cohort study[J]. Eur J Surg Oncol,2012,38(7):555 - 561. doi:10.1016/j.ejso.2012.02.177.

[24] Fu SJ,Fang WT,Mao T,et al. Comparison of surgical outcomes after different surgical approach for middle or lower thoracic esophagealsquamous cancer[J]. Zhonghua wei chang wai ke za zhi,2012,15(4):373 - 376.

[25] Liu J,Hu Y,Xie X,et al. Subcarinal node metastasis in thoracic esophageal squamous cell carcinoma[J]. Ann Thorac Surg,2012,93(2):423 - 427. doi:10.1016/j.athoracsur.2011.10.011.

[26] Tada H,Shiozaki A,Fujiwara H,et al. Lymphadenectomy via a cervical approach for upper mediastinal lymph node recurrence of esophageal cancer:report of a case[J]. Surg Today,2011,41(11):1562 - 1566. doi:10.1007/s00595 - 010 - 4521 - 8.

[27] Fang Q,Han YT,Ren GG,et al. Effect of minimally invasive Ivor-Lewis esophagectomy on acute phase responses in patients with esophagealcarcinoma[J]. Zhonghua Zhong Liu Za Zhi,2010,32(11):868 - 871.

[28] Puntambekar SP,Agarwal GA,Joshi SN,et al. Thoracolaparoscopy in the lateral position for esophageal cancer:the experience of a single institution with 112 consecutive patients[J]. Surg Endosc,2010,24(10):2407 - 2414. doi:10.1007/s00464 - 010 - 0963 - 8.

[29] Chadha KS,Schiff M,Sitrin MD,et al. Clinical outcomes of using a conservative approach of late esophageal stent placement in palliation of malignant dysphagia[J]. J Gastrointest Cancer,2010,41(3):173 - 178. doi:10.1007/s12029 - 010 - 9133 - 4.

[30] Luo KJ,Fu JH,Hu Y,et al. Efficacy of surgicalresection of left and right transthoracic approaches for middle thoracic esophagealsquamouscell carcinoma[J]. Ai zheng,2009,28(12):1260 - 1264.

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