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Single Port Thoracic Medical Tumor Resectionclinical Efficiency and Security Analysis Based on Evidence Based Thought

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Abstract: This article discusses the clinical efficacy of single-port thoracoscopic anterior mediastinal tumor resection. The clinical efficacy and safety analysis of single-port thoracoscopic mediastinal tumor resection based on evidence-based thinking is proposed. Single-port thoracoscopic anterior mediastinal tumor resection has the advantages of small surgical wounds, less intraoperative blood loss, and fewer postoperative complications. Compared with traditional thoracotomy, the clinical efficacy and long-term survival are not significantly different. It can effectively improve the surgical index and relieve the degree of pain, and at the same time can reduce the incidence of complications, and promote the early recovery of patients. It is worthy of popularization and application. Evidence-based concepts are run through the whole process of clinical treatment, strengthen the quality of treatment, improve the quality of personnel, adhere to the quality of treatment, and promote the development of treatment.

1. Introduction

With the development of evidence-based medicine, its connotation and extension have been extended, and evidence-based ideas such as evidence-based health care, evidence-based nursing and evidence-based hospital management have been widely used [1]. A database of clinical data has been set up in China Evidence-based Medicine /Cochrane Center, training professionals and publishing related journals, which provides a good development platform and scientific basis for the popularization education and in-depth research of evidence-based medicine. It also brings vitality to clinical treatment [2]. Anterior mediastinal tumor is a common mediastinal tumor disease in clinic, including teratoma and lipoma. According to clinical investigation and statistics, it is found that the prevalence of patients with anterior mediastinal tumor is increasing, which has a great impact on their daily work and life [3]. Surgical procedures are common methods for the clinical treatment of anterior mediastinal tumors, such as traditional thoracotomy and thoracoscopic guided left thoracotomy. However, this kind of operation takes a long time and has great trauma. In addition, the location of anterior mediastinal tumors in the chest is relatively special, and there may be various complex problems during the operation. When removing anterior mediastinal tumors,

thoracoscopic guidance can obtain a clear field of vision, Clearly observe the relationship between mediastinal tumor and adjacent tissues, so as to give better resection effect [4]. With the popularity of minimally invasive surgery, three holes are often used before thoracoscopic resection of mediastinal tumors. After several years of continuous development, thoracoscopic single-hole surgery has been used to treat anterior mediastinal tumors [5]. There are many tissues and organs in mediastinum, the origin of embryogenic structure is complex, and there are many kinds of tumors. Common mediastinal tumors include thymoma, teratoma, neurogenic tumor, bronchogenic cyst and esophageal cyst. About half of mediastinal tumors have no clinical symptoms, which can only be found during physical examination. Some patients may show cough, chest pain and chest tightness, and sometimes the corresponding symptoms may be caused by rupture of mediastinal tumors [6]. In this study, the single port operation thoracoscope was used for anterior mediastinal tumor stasis, and the ideal effect was achieved.

2. Evidence Based Thought

The concept of evidence-based medicine was formally proposed in 1992 by Professor David LSackett of McMaster University in Canada. The core idea is to apply the best clinical research results available, combined with personal clinical experience and basic medical theoretical knowledge, to make appropriate medical decisions. That is to say, in clinical practice, we can not only rely on basic medical theories and logical reasoning, doctors, and even senior doctors' experience to deal with patients. Some classic cases in the history of evidence-based medicine show that some classic theories of medicine are not necessarily all correct or the best treatment plan for diseases. As the main body of practicing evidence-based medicine, the medical theoretical knowledge and clinical experience possessed by doctors play a decisive role in the diagnosis and treatment of patients. Clinicians should strengthen continuing medical education to update their knowledge and improve their clinical skills. Only by constantly updating and enriching their knowledge and theories and actively mastering new methods and technologies can they change their thinking views in the process of diagnosis and treatment of patients, persist in evidence-based, try to find the best evidence and solve various clinical problems. Evidence-based medicine requires following evidence. Apply evidence to guide clinical practice with a rigorous attitude, follow the development law of objective things, respect patients' choices and expectations of diagnosis and treatment methods, and give reasonable and feasible intervention measures. Otherwise, it will affect the quality of medical care and the improvement of the quality of treatment. High-quality clinicians are the primary condition for practicing evidence-based medicine and improving the quality of treatment. Secondly, the education of evidence-based medicine for clinical medical students should be strengthened, and excellent successors should be cultivated.

3. Methods and Results

3.1 Surgical Methods

To establish a quality management system conducive to the development of clinical treatment and clinical medicine, the combination of medical treatment and quality improvement, and the combination of evidence-based thinking with the hospital's three-level ward round system, nursing system and medical record writing system.

Clinical data of 43 patients with anterior mediastinal thymic tumors who underwent surgical treatment in a hospital from January 2019 to June 2020. Inclusion criteria: 1. Anterior mediastinal thymic tumors confirmed by postoperative pathology. 2. Have detailed and complete clinical and follow-up data. Exclusion criteria: 1. Combined with tumors in other parts. 2. 2. The functions of

heart, liver, lung, kidney and other organs are seriously abnormal. According to different surgical methods, 25 patients with thoracotomy were included in the thoracotomy group and 18 patients with single port operation thoracoscope were included in the single hole group. In the thoracotomy group, there were 14 males and 11 females. The age ranged from 21 to 68 years, with an average of (45.62 ± 11.31) years. There were no clinical symptoms in 17 cases, chest tightness in 4 cases and myasthenia gravis in 4 cases (3 cases of mild systemic type and 1 case of ocular muscle type according to Osserman classification). In the single hole group, there were 10 males and 8 females. The average age was (45.71 11.39) years, ranging from 22 to 67 years. There were no clinical symptoms in 12 cases, chest tightness in 2 cases and myasthenia gravis in 4 cases (2 cases of mild systemic type and 2 cases of ocular muscle type according to Osserman classification). There was no significant difference in sex, age and clinical symptoms between the two groups (P>0.05), which was comparable.

The thoracotomy group underwent thoracotomy. The patient was placed in a supine position and under general anesthesia. A 14-19 cm incision was made in the middle of the sternum. The chest was opened routinely to fully expose the thoracic cavity. Mediastinal tumors were separated under direct vision, and blood vessels were ligated to stop bleeding. After the tumor is removed, it is taken out, placed in a closed drainage tube in the chest cavity, sutured layer by layer, and closed the chest cavity. Single port operation thoracoscope underwent resection under Single port operation thoracoscope, dual-chamber tracheal anesthesia, the patient was placed in a supine position, the affected side was raised 30°, the upper limb was lifted and fixed, and the procedure was performed on the 7.8th intercostal space between the mid-axillary line and the front line of the limb. A 2 cm incision is placed into the observation mirror. A 4 cm incision was made at the third rib of the axillary front as the operation hole, and a protective ring was placed at the operation hole. Anesthesia was combined with one lung ventilation on the healthy side, the tumor or thymus tissue was fully pulled by an elbow aspirator with frosted, and the adhesion between the tumor and the surrounding tissue was completely separated by an ultrasonic knife or electrocoagulation hook. For the tumor at the anterior mediastinum, total thymectomy and anterior mediastinal fat resection were performed, the lower edge of the thymus side was stripped off, fully pulled, separated from the lower edge of the opposite side of the thymus and the upper edges of both sides, and blunt and sharp separation was performed by suction device, electric knife and other equipment. For the solid tumor with too large tumor body, cut it and take it out. For cystic tumors with too large tumor body, purse-string suture is performed on the surface of the tumor, the wall of the purse-string is punctured with a sharp knife, and the substance in the tumor is sucked out by using an aspirator. After taking out the aspirator, the purse-string is tightened to tie the knot with a suture, and the suture is retained, while pulling the suture, the tumor is removed along the wall with an ultrasonic knife. After the operation, the thoracic drainage tube was placed in the observation hole. All tumors removed during operation were sent to pathological examination. For esophageal and bronchogenic tumors, when the adhesion between the basement and esophagus and trachea is dense, it is difficult to force sharp separation. The tumor can be completely removed by clamping the basement with a cutting stapler under endoscope, and the occurrence of esophageal fistula and bronchopleural fistula can be avoided. In the case of large or infiltrating tumors, the amount of intraoperative blood loss is large, a spreader can be used to expand the incision and surgical field of vision, and the tumor can be safely removed with the assistance of thoracoscopy and traditional surgical instruments. Larger surgical wounds can be sprayed with biological glue and chemical glue to reduce postoperative bleeding.

3.2 Result

All patients successfully completed the operation, and there was no conversion to thoracotomy in the single hole group. The operation time, intraoperative bleeding volume and drainage volume in the single hole group were significantly lower than those in the thoracotomy group ($P < 0.05$). As shown in Table 1.

Table 1 Comparison of Operation Time, Intraoperative Blood Loss, and Drainage Volume between the Two Groups

Group	Operation time (min)	Intraoperative blood loss (ml)	Discharge (ml)
Open chest group (n=25)	154.72±22.42	95.92±15.73	389.14±43.25
Single hole group (n=18)	114.29±13.27	59.37±11.26	96.68±13.76
T value	8.441	9.563	29.157
P value	<0.05	<0.05	<0.05

There is no significant difference in preoperative quality of life and pain stress indexes such as IL-1, IL-6 and PCT between thoracotomy group and single hole group ($P>0.05$), but the quality of life and pain stress indexes such as IL-1, IL-6 and PCT in single hole group after treatment are significantly lower than those in thoracotomy group ($P < 0.05$), see Table 2.

Table 2 Comparison of Pain Stress Index Levels Before and after Treatment

Group	IL-1(ng/L)		IL-6(ng/L)		PCT(umol/L)	
	Before treatment	After treatment	Before treatment	After treatment	Before treatment	After treatment
Open chest group (n=25)	1.76±0.64	2.61±0.71	5.83±0.55	10.89±1.49	0.46±0.11	0.64+0.34
Single hole group (n=18)	1.75±0.46	1 .95±0.52	5.98+0.73	6.53±1.26	0.45±0.98	0.46±0.11
T value	0.182	5.338	1.758	15.178	1.544	4.231
P value	0.874	0.000	0.094	0.000	0.139	0.000

The total incidence of postoperative complications in the single port group was 10.54% (2/18), which was lower than 46.83% (11/25) in the thoracotomy group. The difference is statistically significant ($\chi 2=6.267$, $P<0.05$) as shown in Table 3.

Table 3 the Incidence Of Postoperative Complications in the Two Groups (%)

Group	Arrhythmia	Incision infection	Limited shoulder mobility	Lung infection
Open chest group (n=25)	1(4.28)	1(4.28)	8(34.36)	1(4.28)
Single hole group (n=18)	1(6.32)	0(0.0)	1(6.32)	0(0.0)

4. Conclusions

The development of evidence-based medicine has brought opportunities for the development of clinical treatment. This brand-new thinking and management model will inevitably bring significant changes and vitality to clinical treatment, and make a huge qualitative leap in clinical treatment. Traditional thoracic surgery has a long incision, large trauma, and high risk. However, conservative treatment takes a long time and has a high recurrence rate, poor efficacy, and many complications. In recent years, thoracoscopic technology has been widely used in the treatment of thoracic surgery lung, esophagus, chest wall diseases and mediastinal tumors. The technology is becoming more and more mature and perfect. In particular, most mediastinal tumors can be removed by thoracoscopy, which has changed the treatment concept of thoracic surgery diseases. Video-assisted thoracoscopic

surgery has higher and stricter requirements for doctors, which requires a certain period of video-assisted thoracoscopic surgery training, and the operation cost is high, which limits the popularization of video-assisted thoracoscopic technology. Embryogenic tumor, thymic cyst and thymoma are more common in anterior mediastinal tumors, most of which are benign tumors, and the prognosis of malignant tumors is usually better. Therefore, when patients have no contraindications, surgical treatment is the first choice. If mediastinal tumors and cysts are not treated promptly and effectively, they may grow with the prolongation of time, some may become malignant, and some thymic cysts may become secondary infections. Some mediastinal tumors cannot be clearly defined as benign or malignant before surgery. If timely and effective treatment is not taken, the best treatment opportunity may be delayed and the patient's life safety may be endangered. For thymoma and thymic cysts, early total thymectomy or complete cyst removal can obtain an ideal prognosis. Single port operation thoracoscope surgery has been widely used in thoracic surgery. Anterior Mediastinal Tumor Resection under Single Port Operation Thoracoscope solves the problems of large wound, large amount of bleeding during operation, difficult recovery after operation and high incidence of complications in traditional thoracotomy. To sum up, the intraoperative and postoperative indexes of anterior mediastinal tumor resection under single-port laparoscopic surgery are better than those of traditional thoracotomy, and the long-term curative effect is accurate, and the operation is safe and reliable, which is worthy of popularization and application.

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