



Management of Chest Wall Tumors with Tahalele's Method: Review Article

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Abstract

Background: Cancer or malignant tumors occur due to the growth of tissue cells in the body that are not normal or grow continuously and in an uncontrolled way. One type of tumor is a chest wall tumor. There are three treatments of chest wall tumors, namely open surgery, radiotherapy and chemotherapy. In open surgery, one of the methods that can be used as a recommendation is Tahalele's method.

Discussion: Tahalele's method is an open surgery procedure developed in the Department of Thoracic Cardio Vascular Surgery in Dr Soetomo Hospital, Surabaya. Research for this method has been carried out from 1986 to 2012 (26 years) with 101 cases treated. In that study the operative mortality showed zero (0%), hospital mortality occurred in 2 patients (1.98%), local postoperative recurrence in 4 patients (3.96%), partial flap necrosis in 5 patients (4.95%), postoperative infections occurred in 3 patients (2.97%) and no complications such as flail chest (0%) were found.

Conclusion: Tahalele's method is one of the surgical and reconstructive procedures for chest wall tumors. From the results of the study, it was found that this method was highly recommended due to low mortality and morbidity rates. It is hoped that in the future the treatment of chest wall tumors can further develop with a better postoperative prognosis.

Key words: Tahalele's method, open surgery, chest wall tumor.

Background

Cancer or malignant tumors occur due to the growth of tissue cells in the body that are not normal or grow continuously and in uncontrolled way. This is caused by neoplasia, dysplasia and hyperplasia. One type of cancer is lung cancer. In Indonesia, lung cancer ranks third after breast cancer and cervical cancer [1,2].

Lung cancer is classified into two major parts namely 1) *Non-Small Cell Lung Carcinoma* (NSCLC), which includes adenocarcinoma, squamous carcinoma and large cell carcinoma; 2) *Small Cell Lung Carcinoma* (SCLC). Based on its location, lung cancer will develop in the chest wall and epithelium of the bronchi. Usually lung cancer in the early stages does not cause any symptoms. When the advanced stage begins, patients suffer from symptoms such as coughing, chest pain, fever, hoarseness, shoulder pain and weight loss.

One location of cancer or tumors that are often found is chest wall [1,2,3]. Chest wall tumors are tumors of heterogeneous groups of lesions that require accuracy in establishing the diagnosis. Malignancy in the chest wall accounts for about 5% of the total malignancy in the thorax. The results of histopathology show the origin of cancer, which varies from soft tissue, bone around the thoracic cavity and metastases from other organs [2,3].

Chest wall tumors are usually asymptomatic. More than 20% of chest wall tumors are found accidentally during radiography examinations. Malignant tumors in the chest wall usually originate from invasion of tissue around the chest or metastases from other organs. These are such tumors as multiple myeloma, chondrosarcoma, osteosarcoma and Ewing's sarcoma. Usually this type of tumor will give symptoms such as intense pain, quick growth and usually during physical examination the mass can be felt [1,3,4].

Diagnosis of chest wall tumors consists of interview covering complaints, risk factors and family history of malignancy. Furthermore, a physical examination and supporting examination. Investigations carried out

consisted of routine blood and chest radiography examinations consisting of Ct-Scan, MRI and positron emission tomography [2,4,5].

Until now, the treatment of chest wall tumors is surgery, chemotherapy and radiotherapy. Determination of appropriate treatment is usually based on the size, extent and type of the tumor. In cases such as rhabdomyosarcoma and Ewing's sarcoma it is usually recommended that neoadjuvant chemotherapy is performed as well as further surgical procedures [2,3,4].

Open surgery procedure, known as surgical resection, performed on chest wall tumors is a resection procedure. One of the operating techniques developed is Tahalele's Method.

Discussion

Chest wall tumors are one type of malignancy that occur in the thoracic cavity area. Various types of tumors such as chondroma, osteoma, soft tissue sarcoma, Ewing's sarcoma, rhabdomyosarcoma and metastases from other organs, especially the breast and thyroid ones, are the most common types of tumors that appear on the chest wall [2,4,5].

Chest wall tumors are also difficult and challenging cases for surgeons. Incorrect diagnosis, not full tumor resection and failed reconstruction cause high mortality rate in cases of these tumors. One type of chest wall tumor that is very malignant is the small-blue-round-cell tumor, which belong to the Ewing's sarcoma tumors group [2,3,6]. This tumor often occurs in young adults and children. This tumor also has a high recurrence rate and metastasis [1,2,7,8].

Until now the treatment given in cases of chest wall tumors consists of open surgery, radiotherapy and chemotherapy (adjuvant or neoadjuvant). These three actions are usually combined depending on the type, stage and location of the tumor [1,2,4,5]. Open surgery is one of the procedures used in treating the cases of chest wall tumors. Various methods in dealing with this case have been developed with the aim of reducing mortality and postoperative morbidity. One method of operating the chest wall tumor is Tahalele's Method.

Chest wall tumor surgery procedure with Tahalele's own method was developed in the Department of Cardio Vascular Thoracic Surgery Dr Soetomo Hospital, Surabaya [6]. From the results of a retrospective study conducted from 1986 to 2012, as many as 101 cases have been treated with this method, which primarily included chest wall tumors such as chondroma in 13 patients (12.87%), osteoma in 14 people (13.86%), clear Toratoma in 1 patient (0.99%), chondrosarcoma in four patients (3.96%), Osteosarcoma in 22 patients (21.78%), soft tissue sarcoma in six patients (5.94%), Ewing's sarcoma in one patient (0.99%), rhabdomyosarcoma in three patients (2.97%) and wall tumors that are metastases from other organs, namely metastasis from the breast in twenty two patients (21.78%), metastases from the thyroid in 13 patients (12.87%) and metastases from malignant teratomas in two patients (1.98%) [6,9,10,11]. This study included the results of patient follow-up for four years after surgery. Operative mortality showed zero (0%), hospital mortality occurred in two patients (1.98%), local postoperative recurrence in four patients (3.96%), partial flap necrosis in 5 patients (4.95%), postoperative infection occurred in three patients (2.97%) and no complications such as flail chest (0%) were found [1,2,6,7,11].

Treatment of chest wall tumors with this method gives satisfactory results. Clean chest tumor resection, chest wall reconstruction with semirigid wire (Tahalele's method) covered by soft tissue, makes Tahalele's method one of the recommendations in treating chest wall tumors [3,4,6,11].

Conclusion

Chest wall tumors are one type of malignancy that occurs in the thoracic cavity area that requires accuracy in the diagnosis and treatment. Until now, treatment of chest wall tumors consisted of open surgery, radiotherapy and chemotherapy [1,2,3]. These three actions are usually combined depending on the type, stage and location of the tumor [3,4,5,11].

One method of surgery for chest wall tumors is Tahalele's method that has been developed in Indonesia, specifically the Thoracic Vascular Thoracic Surgery Department of Dr Soetomo Hospital, Surabaya [11]. The conducted research shows that this method can be used as a recommendation in the management of chest wall tumors with low mortality and morbidity rates. It is hoped that in the future the treatment of chest wall tumors can further develop with a better postoperative prognosis [5,6,11].

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