Management of Carcinoma of the Superior Pulmonary Sulcus

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Johnson and Goldberg provide a comprehensive review of the management of the Pancoast tumor, a bronchogenic carcinoma located in the superior pulmonary sulcus. Due to this specific location, Pancoast tumors can invade nerves, blood vessels, and musculoskeletal structures located at the level of the thoracic inlet. Such invasion can produce a wide range of clinical signs and symptoms, recognized as the Pancoast syndrome.

Nevertheless, the presence of the Pancoast syndrome is not pathognomonic for a malignant neoplasm. There is a group of benign conditions that, due to similar anatomic location, can behave like a Pancoast tumor. For this reason, as stated by the authors, tissue diagnosis is mandatory.

The authors review the literature on the diagnosis of and treatment options for this fascinating tumor. They provide historical data, including the initial clinical description by Drs. Edwin Hare and H. K. Pancoast, as well as an interesting discussion on current controversies over the optimal diagnostic strategy (CT vs MRI) and, most recently, the use of ultrasound-guided fine-needle aspiration, which is supported by Dr. Yang et al.

The authors also discuss the importance of accurate staging and the role of mediastinoscopy. They emphasize that a complete metastatic work-up should be performed because most of the treatment failures are secondary to distant metastases, usually to bone or brain.

The authors review several treatments reported in the literature, including Dr. Shaw's approach, which is based on preoperative radiotherapy followed by radical resection, including resection of the chest wall, lobectomy/wedge resection or pneumonectomy, and resection of the most inferior trunks of the brachial plexus. Paulson[1] reported that this approach achieved a 34% 5-year survival rate in a series of 61 patients. This treatment strategy is used frequently by thoracic surgeons with experience in the management of Pancoast tumors.

Unfortunately, most of the series are retrospective, and several important issues have not been clarified. These include: (1) the benefits of surgery over radiation, (2) the question of which modality should be given first, and (3) the value of single- vs combined-modality therapy. Currently, most of the treatment strategies are based on the experiences of individual institutions. Also, the impact of chemotherapy on the outcome of patients with Pancoast tumors has not been determined.

A Surgical Approach for "Unresectable" Tumors

Positive mediastinal lymph nodes, as well as extensive vertebral body, brachial plexus, and subclavian vascular invasion, indicate a poor prognosis, and these are considered contraindications to resection, as noted by the authors. These criteria have been challenged by Dartevelle et al,[2] who have developed an anterior transcervical-thoracic approach to apical lesions that maximizes the exposure to the thoracic inlet. This approach facilitates vascular control, resection of the subclavian artery, and reanastomosis with a polytetrafluoroethylene (PTFE) graft, as well as resection and ligation of the subclavian vein. The technique also facilitates dissection at the level of the trunks of the brachial plexus.

This procedure does not preclude combination with the most traditional approach, which uses a posterolateral thoracotomy. The combination of the two approaches may permit resection of very difficult tumors invading the thoracic inlet. With the combined approach, selected patients who were previously considered to be unresectable have undergone resection with a 29% 5-year survival rate. There is no upfront radiotherapy with this approach. Instead, patients receive postoperative radiotherapy in combination with chemotherapy.

Several authors have demonstrated improved survival in patients with N2 disease (no Pancoast
tumors) who receive neoadjuvant chemotherapy for the purpose of downstaging.[3,4] This treatment may be applicable to superior sulcus tumors with N2 disease.

It is also very important to document invasion through the cortex of the vertebral body before denying surgical resection based on minor deformities. Despite the advances in local control, most patients still die of distant metastases. As mentioned by the authors, surgery remains a very important component of the treatment plan, especially in those patients with no evidence of metastatic disease, which remains an absolute contraindication to radical resection.

References:


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