

18. Lang P, Genant HK, Jergesen HE, Murray WR. Imaging of the hip joint. Computed tomography versus magnetic resonance imaging. *Clin Orthop* 1992;274:135-53.
19. Carter SR, Eastwood DM, Grimer RJ, Sneath RS. Hindquarter amputation for tumours of the musculoskeletal system. *J Bone Joint Surg [Br]* 1990;72:490-3.
20. Gherlinzoni F, Picci P, Bacci G, Campanacci D. Limb sparing versus amputation in osteosarcoma. Correlation between local control, surgical margins and tumour necrosis: Instituto Rizzoli experience. *Ann Oncol* 1992;3(Suppl 2):S23-7.
21. Horowitz SM, Glasser DB, Lane JM, Healey JH. Prosthetic and extremity survivorship after limb salvage for sarcoma. *Clin Orthop* 1993;293:280-6.
22. Rougraff RT, Simon MA, Kneisl JS, Greenburg DB, Mankin HJ. Limb salvage compared with amputation for osteosarcoma of the distal end of the femur. A long-term oncological, functional, and quality-of-life study. *J Bone Joint Surg [Am]* 1994;76:649-56.
23. Ruggieri P, De Christofaro R, Picci P, Bacci G, Biagini R, Casadei R, et al. Complications and surgical indications in 144 cases of non-metastatic osteosarcoma of the extremities treated with neoadjuvant chemotherapy. *Clin Orthop* 1993;295:226-38.
24. Simon MA. Limb salvage for osteosarcoma in the 1980's. *Clin Orthop* 1991;270:264-70.

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Most thymomas are benign. In a collection of 15 series, the rate of malignancy averaged 33%.

When muscular weakness (myasthenia gravis) occurs in conjunction with thymoma, the cause is a reduction in acetylcholine receptors at the neuromuscular junction. Antibodies to the acetylcholine receptors are found in more than 85% of patients with myasthenia gravis associated with thymoma and it is believed that there is thymic involvement in this autoimmune response to the acetylcholine receptors. In addition to myasthenia gravis, many other syndromes are associated with thymoma, including connective tissue diseases, blood disorders, and Cushing's syndrome. When Cushing's syndrome is seen, it is secondary to an APUD or "carcinoid" tumor of the thymus that produces corticotropin. The other disorders associated with thymic tumors are secondary to autoimmune processes.

Any patient with a thymic tumor should undergo operation to establish a diagnosis, to resect a potential malignant tumor, and possibly to palliate myasthenia gravis if it is present. In addition to thymoma, carcinoid, lymphoma, teratoma, and squamous cell cancer can originate in the thymus. Medical therapy, which is moderately successful in alleviating the symptoms of muscle weakness in myasthenia gravis, is aimed at amplifying the muscle response to acetylcholine by using anticholinesterase drugs such as pyridostigmine and neostigmine and in using immunosuppressive drugs to suppress autoimmune effects. Thymectomy provides long-term improvement in symptoms of myasthenia gravis in 57% to 86% of patients with myasthenia gravis associated with or without thymoma. However, improvement after thymectomy may take several years.

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References

- 482/1. Orringer MB: Chest wall, mediastinum, and pleura, in Greenfield LJ (ed): *Surgery: Scientific Principles and Practice*. Philadelphia, JB Lippincott Co, 1993, pp 1332-1333
- 482/2. Papatestas AE, Jenkins G, Kornfeld P, et al: Effects of thymectomy in myasthenia gravis. *Ann Surg* 206:79-88, 1987
- 482/3. Rosenow EC, Hurley BT: Disorders of the thymus: A review. *Arch Intern Med* 144:763-770, 1984
- 482/4. Verley JM, Hollman KH: Thymoma: A comparative study of clinical stages, histologic features, and survival in 200 cases. *Cancer* 55:1074-1086, 1985