18.19.2 Pulmonary metastases 4360 S.G. Spiro

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section 18 Respiratory disorders 4360 18.19.2 Pulmonary metastases S.G. Spiro ESSENTIALS Malignant metastasis to the lung is common. It may present as a soli- tary enlarging nodule, as multiple nodules ranging enormously in size and number, and/or with diffuse lymphatic involvement. Diagnosis can usually be secured by percutaneous CT-guided biopsy and most suspicious lesions will be PET positive. Surgical excision may prolong survival or result in cure in some cases. Introduction Malignant metastasis to the lung is common because of the lung's rich blood supply, and may present as a solitary enlarging nodule, as multiple nodules, or with diffuse lymphatic involvement. Surgical metastasectomy In all patients, before resection is attempted, the patient needs to be assessed as fit for lung resection, the primary tumour site should be controlled, and all metastatic disease must be considered removable. More than one attempt at excision is possible. Solitary metastases About 10% of all round pulmonary lesions are metastases, but some 70% of round lesions occur in patients with a known malignancy. Colorectal cancer is reported to be the commonest tumour of origin. Diagnosis can usually be secured by percutaneous CT-guided bi- opsy, often preceded by a staging PET scan, where the lesion is most likely to be positive. In many cases, surgical excision may prolong survival and result in cure in some, depending on the state of the pri- mary tumour and the likelihood of other occult metastases. Surgery is sometimes recommended after successful control of the disease with chemotherapy, or if any residual tissues become PET negative. Routine follow-up with CT scanning has revealed an increasing number of clinically well patients deemed clear of disease at their primary site, but with distant pulmonary metastases. Usually such disease is caught at an early stage of recurrence, is of low volume, and can be resected relatively easily, usually thoracoscopically. However, if the new lesion appears solitary, the possibility of a second primary (i.e. a lung cancer), needs to be considered before resection. Multiple metastases Multiple metastases may range considerably in size and number, from cannon balls to multiple lesions of varying size, down to mil- iary shadowing, which may be accompanied by hilar lymphaden- opathy or pleural effusion. Breast, colon, renal cancers, melanoma, and lung primaries are the commonest underlying tumours, but other tumours amenable to chemotherapy occur, such as testicular cancer, choriocarcinoma, and also sarcomas. Diagnosis may be achieved by cytology or histology on various samples from the pleura or lung and can occasionally be made from cytology of expectorated or induced sputum. Tumours that are

suitable for chemotherapy (e.g. choriocarcinoma) or endocrine manipulation (e.g. breast) need to be recognized. Solitary or multiple Kaposi’s sar- coma is a feature of AIDS and can involve the bronchi and pleura as well as lung tissue. Resection remains the treatment of choice, and good prognostic factors include the time from treatment of the primary tumour to the development of lung metastases, the fewer the number, the absence of extrapulmonary metastases, and the longer the tumour doubling time. The most favourable group are younger patients with a good performance status, with sarcomas who present with lesions a year or more after successful treatment of the primary disease. Factors including older age, male sex, and more lung metastases predict poorer survival after resection of any initial pulmonary metastases. The number of lung metastases present at a first metastasectomy and the preoperative interval predict recurrence in the lung. Survival following surgical excision is summarized in Table 18.19.2.1. In a study of recurrent lung metastases after excision of colorectal cancer, which is the commonest type of cancer in clin- ical reports of surgical metastasectomy, the overall median survival from second lung metastasectomy was 70 months. Other techniques Other techniques to remove pulmonary metastases include radio- or microwave ablation. This can achieve high ablation rates (>70%) and is usually most effective in lesions of 3 cm diameter or less. Two year survival rates of about 75% are common. The commonest com- plication is pneumothorax (<10%), with a very occasional need for an intercostal drain. Pulmonary haemorrhage is also a significant risk at about 5%. FURTHER READING Patrini D, et al. (2017). Surgical management of lung metastases. Br J Hosp Med, 78, 192–8. Phillips JD, Hasson RM (2019). Surgical management of colorectal lung metastases. J Surg Oncol, 119, 629–35. Regal AM, et al. (1985). Median sternotomy for metastatic lung lesions in 131 patients. Cancer, 55, 1334–9. Stewart JR, et al. (1992). Twenty years’ experience with pulmonary metastasectomy. Am Surg, 58, 100–3. Table 18.19.2.1 Five-year survival following resection of pulmonary metastases according to primary tumour type

Tumour type	5-year survival (%)
Soft tissue sarcoma	25
Osteogenic sarcoma	20–40
Colon/rectal carcinoma	8–37
Renal cell carcinoma	13–50
Breast carcinoma	14–49
Head/neck carcinoma	40–50
Melanoma	25

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