Metastatic Malignant Melanoma



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MEDICAL

Metastatic Malignant Melanoma

Clinical History

A 65-year old male with presents with pain in his left groin. He has a history of skin melanoma on his left foot treated with surgical resection and radiotherapy. On examination, he is cachexic with a hard, enlarged liver and has a discharging sinus in the left groin surrounded by black nodules. He is admitted and dies from a hospital-acquired pneumonia.

Pathology

The specimen is the patient's proximal right femur sawn longitudinally to display the cut surface. The medullary cavity contains many deposits of tumour tissue varying in colour from a pale brown to black. Cancellous bone has been completely destroyed by the larger deposits, which appear dark and measure up to 3 cm in maximum diameter. Elsewhere pale brown tumour infiltrates the marrow cavity diffusely. Cortical bone has been spared, although at the junction of the shaft and neck, medially the cortical bone is discoloured and thickened. These are metastatic deposits from a melanoma of the skin.





Further Information

Melanoma is a malignant skin cancer associated with exposure to UV radiation in sunlight or tanning beds. Other risk factors for developing melanoma include fair complexion, presence of large number of melanocytic naevi, severe sunburn as a child and immunosuppression. It accounts for around 5% of all skin cancer diagnosis but has the highest mortality rate of all skin cancers. Melanomas typically occur in sun exposed areas as a pigmented lesion with irregular borders, variegated colour, an asymmetrical shape and which evolves of time. There are multiple mutations common in melanoma. Loss of cell cycle control gene from mutation in CDKN2A gene. Mutations in pro-growth signalling pathways such as BRAF and PI3K mutations are seen frequently in melanomas, as well as mutations that activate telomerase such as the TERT gene. Recognition that melanoma antigens activate host immune responses has led to promising immunotherapy, which enhances host T-cell identifying of these antigens.

The most common sites for metastasis of malignant melanoma are the lungs, liver, brain and bone as well as regional lymph nodes. Bone metastases are found in 25-50% of metastatic melanoma. The axial skeleton is more frequently affected by metastatic melanoma spread. These metastatic deposits cause pain and even pathological fractures. The probability of metastatic spread depends on the stage of the primary tumour, which is based on tumour depth, mitotic activity and ulceration of the skin as well as node and solid organ involvement.

Diagnosis of melanoma is made with excisional biopsy. Investigation for bone metastasis is done using blood test (raised Alkaline phosphatase, calcium and LDH) and radiological investigations most commonly X-ray and CT but MRI and PET scan may also be used. Treatment depends on the stage or the tumour as well as the immune profile of the melanoma. Treatment usually involves surgical resection, chemotherapy, immunotherapy, radiotherapy or more commonly a combination of treatments.



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