Case Study: Possible Malignant Melanoma

Chief Complaint: 48-year-old man with suspicious-looking mole on his back.

History: Max Burnell, a single, 48-year-old avid long-distance runner previously in good health, presented to his primary physician for a yearly physical examination, during which a suspicious-looking mole was noticed on the back of his left arm, just proximal to the elbow. He reported that he has had that mole for several years, but thinks that it may have gotten larger over the past two years. Max reported that he has noticed itchiness in the area of this mole over the past few weeks. He had multiple other moles on his back, arms, and legs, none of which looked suspicious. Upon further questioning, Max reported that his aunt died in her late forties of skin cancer, but he knew no other details about her illness.

Max is a computer programmer who spends most of the work week indoors. On weekends, however, he typically goes for a 5-mile run and spends much of his afternoons gardening. He has a light complexion, blonde hair, and reports that he sunburns easily but uses protective sunscreen only sporadically.

Physical Examination: Head, neck, thorax and abdominal exams were normal, with the exception of a hard, enlarged, non-tender mass felt in the left axillary region. In addition, a 1.6 x 2.8 cm mole was noted on the dorsal upper left arm. The lesion had an appearance suggestive of a melanoma. It was surgically excised with 3 mm margins using a local anesthetic and sent to the pathology laboratory for histologic analysis.

1. How does the appearance of a malignant melanoma differ from that of a normal mole?

2. Draw a normal mole and this malignant melanoma, as they might appear on the skin (draw them at the correct size – note the dimensions above).

3. Why was it important to surgically excise and examine this mole?

The pathology report gave the following partial description of the tissue sample:
“Diagnosis: Superficial spreading melanoma with vertical level V invasion. Coalescent nests of neoplastic cells were noted in the papillary and reticular dermis and in the subcutaneous layer.”

A “level V invasion” means that the tumor extends from the epidermis into the hypodermis. “Neoplastic cells” are cancer cells.
4. Paraphrase the pathology report in plain English.

5. Why is it useful to determine the level of invasion of this lesion?

Max is advised that he has a malignant melanoma and that it may have already metastasized. He is advised that he may need additional surgery to verify whether his tumor has metastasized.

6. What does "metastasized" mean?

7. Why does Max’s physician think that his cancer has already metastasized?

Max agreed to additional exploratory surgery to determine whether his tumor had metastasized. His physician extracted the hard mass from his left axillary region. Histological examination of this mass demonstrated that the cancer had indeed metastasized into his left axillary lymph node.

8. How do malignant melanomas normally spread to other areas of the body?

9. What probably caused Max’s malignant melanoma?

10. The incidence of malignant melanoma has increased over the past few decades. Why do you think this is?

About 3 months later, Max began complaining of stomach pain. A few days later, he began vomiting uncontrollably. He was rushed to the hospital where he died from an intestinal blockage, later found to be massive colon cancer.

11. How might Max’s malignant melanoma have contributed to his death?