SUBCUTANEOUS NODULES ON CT SCAN : A CASE OF METASTATIC MALIGNANT MELANOMA

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ABSTRACT

The subcutaneous layer is often not scrutinized in the evaluation of CT scans. We present a case of metastatic malignant melanoma where the presence of subcutaneous nodules provided a vital sign toward the correct diagnosis. The relevant clinico-radiological features are reviewed.

INTRODUCTION

Malignant melanoma is an aggressive neoplasm that can metastasize to all organ systems.[1] The majority of metastases occur within 3-5 years of diagnosis.[2] CT is an important imaging tool for accurate staging of the tumour and for therapy planning.[3,4] The first sign of distant haematogenous spread is often the presence of metastatic subcutaneous nodules.[2,5] CT can detect these small soft tissue nodules within the low density subcutaneous fat.[6]

CASE REPORT

A 27 year old man with a history of post meningitic mental retardation and congenital giant hairy naevus presented with high fever and abdominal pain for 3 days.

Examination revealed a temperature of 38' C and gross hepatomegaly. There was bilateral lower limb pitting oedema. Giant hairy naevus over the anterior abdomen and back were noted. Apart from jaundice developing from the 4th day of admission, there were no other significant clinical findings.

Laboratory investigations showed leucocytosis of 23,100/dl with raised polymorphonuclear cells (86%). Liver function tests were abnormal : raised bilirubin 76 umol/l, alkaline phosphatase 519 U/L, ALT 185 U/L and AST 620 U/L. Hepatitis B surface antigen was negative, serum alpha-fetoprotein was normal. The initial clinical diagnosis was hepatobiliary sepsis.

The abdominal X-ray showed hepatomegaly. Ultrasound confirmed this but no focal intrahepatic lesions nor biliary abnormality were noted. Abdominal CT scan showed diffuse inhomogenous hypodensities in the left hepatic lobe with scattered hypodensities in the right lobe. Small nodular deposits were present on the liver surface (Fig. 1,2). The portal vein and inferior vena cava were patent, but the latter was narrowed at its intrahepatic course. The left hepatic vein was incompletely demonstrated. Some ascitic fluid was present. No lymphadenopathy was discerned but small subcutaneous nodules were noted in the abdominal wall (Fig. 3). Bilateral basal lung consolidation and effusions were associated.

The classic triad of abdominal pain, ascites and hepatomegaly together with the typical CT features indicate the diagnosis of Budd-Chiari syndrome, secondary to metastatic disease. The finding of multiple subcutaneous nodules and the known risk of malignant melanoma in congenital giant

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hairy naevus strongly suggest melanoma to be the primary tumour.

At diagnostic laparoscopy, the liver was found to be completely replaced by melanoma deposits (Fig. 4) with a metastatic deposit at the greater omentum. Clear straw coloured ascitic fluid was seen. The patient's condition deteriorated soon after and he succumbed a week after the laparoscopy.

DISCUSSION

Congenital giant hairy naevus is a rare birthmark, occurring in about one in 500,000 newborn.[7] The risk of developing malignant melanoma in such patients is estimated to be 100 times greater than that of the ordinary acquired naevus.[8]

Malignant melanoma is the most malignant skin cancer and unpredictable in its behaviour.[9] The disease may be localized or widely metastatic at initial clinical presentation. The most common sites of metastases are the lymph nodes, lung, liver and brain.[1] The incidence of skin and subcutaneous metastases ranges from 9 to 11% of cases.[1,4]

In the liver, melanoma metastases are often multiple with nodules ranging in size from 0.5 to 6 cm.[10] In a series of 27 patients by Das Gupta, 25 had multiple hepatic nodules while in one, the entire left lobe was replaced by tumour and in the other, there was marked capsular infiltration with normal parenchyma.[10] Metastatic disease is a known cause of Budd-Chiari syndrome, with either global or segmental obstruction of hepatic venous outflow. Obstruction may be at the level of the inferior vena cava, hepatic veins or small centrilobular veins.[11] In our patient, there was veno-occlusive disease involving obstruction at the small centrilobular veins of the left lobe.

Though malignant melanoma is a hypervascular tumour, its hepatic metastases may appear hypodense on contrast enhanced CT.[12] In patients with hepatic metastases, the incidence of concurrent metastases to the subcutaneous layer and/or musculoskeletal system increases to 47%.[12]

Subcutaneous melanoma metastases are eminently detectable by CT due to the contrast between these soft tissue density nodules and the adjacent lower density subcutaneous fat. However, they are subtle because of their small size and the peripheral location.[13] Subcutaneous metastases also occur in lung and ovarian cancers.[6] Less commonly, they are associated with carcinomas of the stomach, kidney and breast.[14] Metastatic subcutaneous nodules may arise in locations remote from the site of the primary tumour.[13,14]

Differentiation must be made between these and benign subcutaneous nodules such as sebaceous cysts and injection granulomas. The presence of calcium suggests injection granulomas. Sebaceous cysts are often located just beneath the skin surface as opposed to metastases which may be deeper and distant from the surface. Furthermore, multiplicity of lesions or an increase in size or number on repeat scans are pointers towards malignancy.[13]

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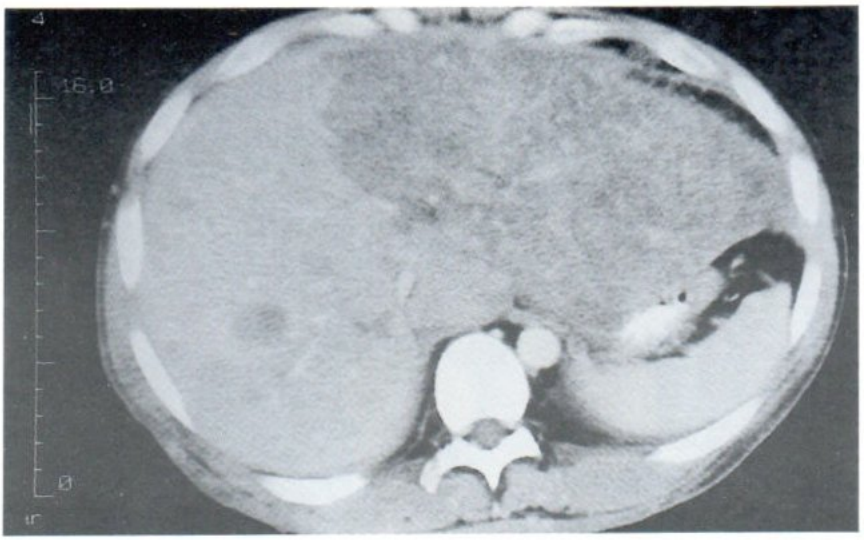

Fig.1 Post contrast scan shows diffuse inhomogenous hypodensities in the left he patic lobe and parts of the right lobe. The intra-hepatic inferior vena cava is compressed with incomplete visualisation of the left hepatic vein.

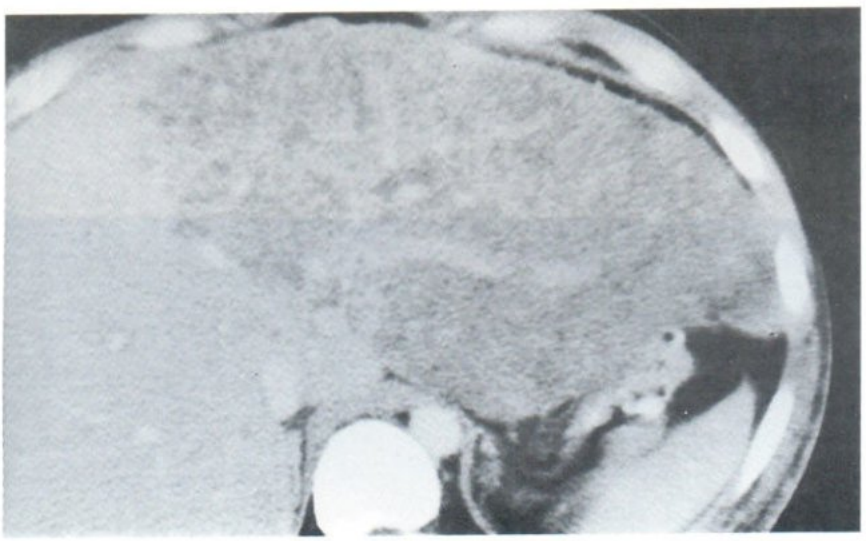

Fig. 2 Close up view shows nodular deposits on the left hepatic lobe surface. The portal vein is patent.

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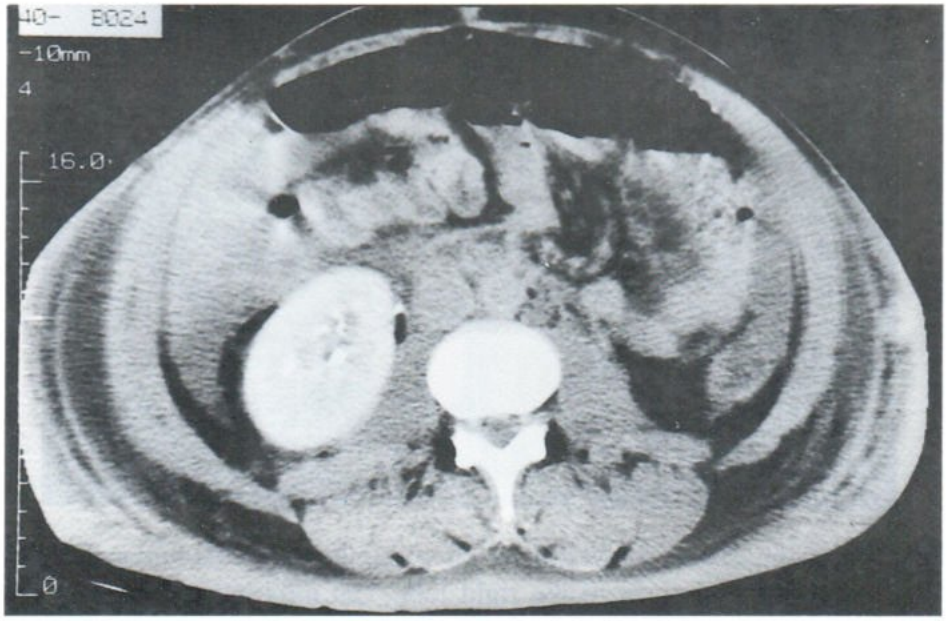

Fig. 3 Ascitic fluid is present. Subcutaneous melanoma metastases are present at the left lateral abdominal wall.

Fig. 4 Laparoscopic image showing blackish melanoma deposits on the liver.