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Choroidal Metastatic Melanoma of Liver

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Abstract

Background: Malignant melanoma is one of the skin tumors, which also arises from uveal tract of eyes. It metastasizes to lymph nodes, lungs and gastrointestinal tract and liver is most common location for metastasis in GI tract.

Case Summary: The case is of 53 years old male presented with upper abdominal pain without alarming symptoms for 6 months duration. Past history positive of right eye enucleation 5 years previously due to biopsy proven choroidal melanoma. Physical examination was unremarkable apart from mild tenderness on right hypochondriac region.

On ultrasound abdomen two hypo echoic mass lesions seen at the junction of right and left lobe of liver. The largest one measures 6.9 x 5.6 cm and the other one measures 2.7 x 1.8 cm lesion suggestive of metastatic deposits. CT scan abdomen triphasic showing heterogeneously enhancing lesion given the impression of hepatoma with no background of chronic liver disease. MRI was also done which has shown T2 Iso to hyperintense lesion giving differentials of focal nodular hyperplasia, hepatic adenoma and fibro lamellar carcinoma.

Due to discrepancy in imaging reports, diagnosis remained grey, so liver biopsy done showing melanin containing tumor cells with S-100 and MART-1 positive suggestive of melanoma. He was then referred to oncologist for further management.

Keywords: Choroid, Melanoma, Metastatic, Liver

Introduction

Melanoma is a malignant tumor that arises from melanocytes cells in skin, rarely arises from oral cavity, intestines and eye (uveal tract) [1]. It metastasizes to other organs commonly lymph nodes, lungs, liver and sometimes to bones and brain [2]. Primary melanoma of liver is very rare, 12 case reports have been published worldwide to date [3]. In Pakistan its first case report to date.

Many cases of liver melanoma are metastatic in nature. Metastasis from skin and uveal tract of eye are commonly seen even after complete resection of primary tumor [4]. Choroid is commonest location for uveal melanoma [5]. Delayed metastasis of primary ocular melanoma has been reported in previous case reports [4].

Case Summary

A case of 53 years old male, taxi driver, resident of middle east country presented with complains of vague upper abdominal pain, vomiting on and off for 1 year with mild undocumented weight loss. Past history of right eye enucleation 5 years previously due to choroid melanoma (Figure 1). No significant finding on examination apart from enucleated right eye and mild right hypochondriac tenderness.

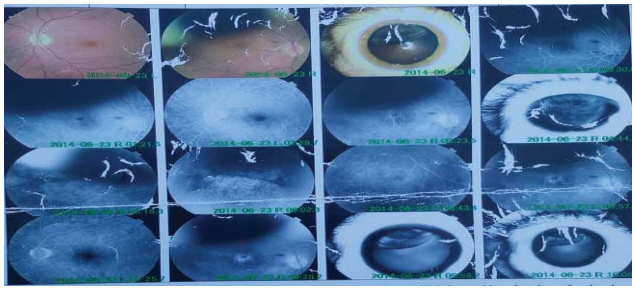

Figure 1: Fundal fluorescein angiography showing large choroidal brown mass at superiotemporal region in right eye masking view of retina in that region (block arrow). Cystoid macular edema with retina haemorrhage along with leakage (narrow arrow).

He has visited multiple centres there and got some workup. Following investigations were brought by him. CBC was normal with HB 13.8 gm/dL, W.B.C 8.4 x10e9/L, and PLTs 354x10^9/L. LFT was normal with T.B 0.57mg/dl, ALT 18 U/l, ALP 108 U/l, GGT 17 U/l, and AST 14 U/l. ESR, Serum Albumin was also normal. HBsAg, Anti HCV antibody and HIV serology was negative. Serum Alpha fetoprotein was normal (2.96 ng/ml).

Initial Ultrasound abdomen commented a well-defined isoechoic lesion with a hypoechoic rim of size 3.3 x 3.5 x 2.9 cm in left lobe of liver. CT scan with oral and rectal contrast rather than hepatic protocol done outside. CT scan showed a well circumscribed hypodense lesion (44HU) in segment IV A of liver measures approximately 3.5 x 3.0 x 3.4 cm (AP*TR*CC) in dimensions. It showed minimal central amorphous hyperintensity on plain scan, no appreciable enhancement on arterial phase (46HU) and progressive centripetal enhancement on venous phase (74 HU). The peripheral puddling of contrast (84HU) is evident on delayed images with hypodense centre. The findings are suggestive of hepatic haemangioma. The liver was normal in size and attenuation.

Since symptoms were not responding to medical treatment, he also underwent MRI abdomen which was showing well defined T2 Iso to hyperintense and T1 hyperintense lesion (approximately 3.7 x 3.5 x 3.8) in the left lobe of liver with possible differentials include focal nodular hyperplasia, hepatic adenoma and fibrolamellar carcinoma. Another small T2 hyperintense and T1 hypointense lesion (approximately 7 x 6 mm) seen in segment V/VI of right lobe of liver with query of small haemangioma.

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Due to persistent symptoms and inconclusive diagnosis despite of extensive workup he returned to his native country for further management.

Repeat ultrasound scan revealed two hypoechoic mass lesions at the junction of right and left lobe of liver. The largest one measures 6.9 x 5.6 cm and shows flow on color Doppler study, representing metastatic lesions (Figure 2). As compared to previous ultrasound scan there was increase in size of lesions which was alarming.

Repeat CT scan abdomen triphasic revealed well defined rounded heterogeneously enhancing lesion seen at junction of right and left lobe of liver, showing significant enhancement on arterial phase and partial washout on portovenous delayed phase (approximately 7.0 x 6.8 cm in size in AP & TS) in liver suggestive of hepatoma. Another ill-defined small lesion approximately 0.8 x 0.9 cm noted in liver suggestive of haemangioma (Figure 2 and 3).

To rule out GI malignancy as primary source of metastasis, he underwent gastroscopy and colonoscopy which were normal. With all above workup he presented to our department. So we decided to get biopsy of liver lesion for definitive diagnosis.

First US guided liver biopsy was nonspecific and inconclusive (Figure 4).

As biopsy was nonspecific we have decided to repeat biopsy after discussing with patient and family. Patient refused for repeat US guided biopsy so we opted for EUS guided biopsy. EUS was showing multiple liver lesions in left lobe.

Biopsy revealed neoplastic lesion comprised of cells containing melanin pigment. The cells were positive for S-100 and Mart 1 IHC stains (Figure 5) suggestive of melanoma.

Considering prior history of choroidal melanoma, this lesion is most likely metastatic rather than primarily of liver origin. He was then referred to hepatobiliary surgeon and oncologist for further management.

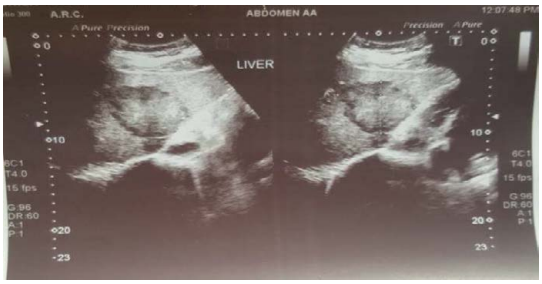

Figure 2: US upper abdomen: showing two hypoechoic mass lesions at the junction of right and left lobe of liver. The largest one measures 6.9 x 5.6 cm (white arrow).

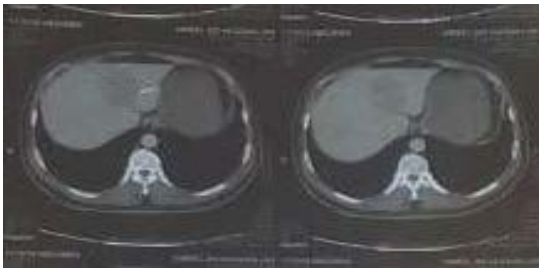

Figure 3: CT scan abdomen triphasic showing hypodense mass lesion in liver on portovenous phase (arrows).

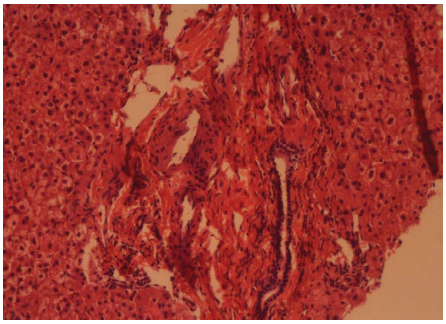

Figure 4: Core of liver parenchyma showing portal tract with minimal infiltration by mononuclear chronic inflammatory cells (arrow).

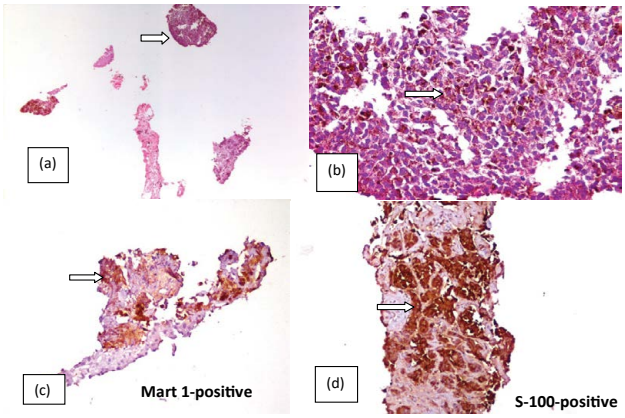

Figure 5: a,b,c and d: (a) Core of liver parenchyma with neoplastic cells at low magnification (arrow). (b) Higher magnification showing individual tumor cells containing melanin pigments (arrow). (c) Tumor cells showing mart-1 positive (Melanoma-associated antigen recognized by T cells) (arrow). (d) Tumor cells showing S-100 positive (arrow).

Discussion

Melanoma is malignant in nature so metastasize to number of organs both through lymphatic and blood vessels [6].The incidence of melanoma is rising and factors contributing to it remained unchanged including sun exposure and UV light [7]. Metastatic melanoma of liver is rare and rapidly progressive [8].

Uveal melanoma is second most common malignant melanoma and spreads through blood vessels as it lacks lymphatic drainage [9]. Liver is commonest site of metastasis in gastrointestinal tract [10]. The diagnosis of melanoma is challenging in gastrointestinal tract.

For diagnosis of liver lesions variable modalities are available which are sensitive to detect lesions including non-invasive techniques like CT abdomen triphasic, MRI and invasive procedures like Liver biopsy. Despite of multiple imaging techniques used in this case it failed to give diagnosis. Ultimately liver biopsy is needed which is gold standard and give tissue diagnosis.

As it is subjective and operator depended sometimes lesion could even be missed as in this case normal tissue core obtained in first biopsy specimen.

After the first biopsy, there was option to repeat scans but to get tissue diagnosis repeating liver biopsy was meaningful. The patient was given multiple choices of US guided, EUS or laparoscopic guided biopsy of liver lesion and he decided to go for EUS guided biopsy as it is least invasive among all these routes.

Once tissue of neoplastic lesion obtained diagnosis become evident, with classical hyperchromatic tumor cells containing melanin pigment and shows positive markers of melanoma on Immunohistochemical (IHC) stains like S-100, and MART-1 (Melanoma-associated antigen recognized by T cells).

S-100 is common marker of neural tissue /lesions and melanoma.S-100B positive in melanoma. The S-100 protein is expressed in all melanocytic cells and in 96% to 100% of malignant melanomas [11]. Mart-1 is a protein found on normal melanocytes in the skin and in the retina, it is more specific than S-100 and it helps to distinguish indifferent cases of melanoma [12].

Treatment

Treatment options include surgical resection, chemotherapy and immunotherapy [13]. If the lesion was diagnosed early in this case, the patient could have been offered definitive excision of lesion. Unfortunately due to heterogeneuosity in findings on radiological imaging's diagnosis become delayed for some duration. Since these lesions are rapidly growing in nature [14], the size of lesion in our case was almost doubled with development of multiple lesions from the time of initial presentation. So this patient was referred to medical oncologist for chemotherapy/immunotherapy.

Prognosis & Survival

Metastatic uveal melanoma to liver has poor prognosis [15]. Metastasis can occur even years after complete treatment of primary lesion. There are case reports showing time duration from diagnosis of primary lesion to metastasis from 3 years to 23 years [4]. In our case it is around 5 years from primary melanoma.

Patients with metastasis to liver have expected survival of 6-9 months extended upto 46-48 months with treatment [8]. To the best of our knowledge at the time of this case presentation patient was alive 8 months since diagnosis and receiving immunotherapy in oncology department.

Conclusion

In a nutshell, metastatic melanoma is rare liver tumor, but it mimics common lesions on radiology such as Hepatocellular carcinoma and haemangioma and leads to delayed diagnosis. And liver biopsy should be obtained for such lesions. Timely diagnosis and early intervention can provide better prognosis and survival.

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