CASE REPORT

Fulminant zygomycosis of graft liver following liver transplantation

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SUMMARY

A 44-year-old man with hepatitis B virus (HBV)-related cirrhosis underwent living donor liver transplantation at our institute. Induction of immunosuppression was achieved with basiliximab, due to deranged renal function, and maintained with prednisolone, tacrolimus and mycophenolate mofetil. The intraoperative and immediate postoperative periods were fairly uneventful. A duplex scan, taken during the third week post-transplantation due to sudden rise in liver enzymes, revealed multifocal hypoechoic lesions in the graft liver with normal Doppler parameters. Multidetector computed tomography (MDCT) showed multiple hypodense vessel-sparing lesions in the graft liver. Cultures from the aspirate grew filamentous fungi identified as *Basidiobolus ranarum* species. Despite multiple broad spectrum antifungal infusions including liposomal amphotericin, itraconazole, caspofungin and posaconazole, serial sonography showed the hepatic lesions increasing in size, and involving segments V, VI and VII. The patient developed severe liver dysfunction ultimately progressing to sepsis, multiorgan dysfunction and death.

BACKGROUND

Basidiobolomycosis usually occurs as a soft tissue infection involving limbs, trunk or buttocks, acquired after minor trauma, and its occurrence as a visceral disease is rare.¹ To date, there has been no reported case of graft basidiobolomycosis following liver transplantation. There is little knowledge regarding the usual mode of visceral migration of this fungus and its presentation as invasive disease in graft liver leading to graft failure.^{2–3} A consensus on management of visceral basidiobolomycosis is still lacking and needs to be arrived at (figures 1 and 2).

CASE PRESENTATION

A 44-year-old man with hepatitis B virus (HBV)-related cirrhosis underwent living donor liver transplantation using an extended right lobe graft. He had a model for end stage liver disease (MELD) score of 31 and history of multiple recurrent decompensations in the past in the form of spontaneous bacterial peritonitis (SBP) and hepatorenal syndrome. Owing to his deranged renal functions, he was immunosuppressed with basiliximab for induction and maintained with tacrolimus and mycophenolate. He had an uneventful first postoperative week, with normal Doppler parameters. During the second postoperative week, he developed a sudden rise in transaminases, which

instilled the need for an urgent Liver doppler or cross sectional imaging.

INVESTIGATIONS

Ultrasonography revealed multiple hypoechoic lesions in the liver with normal doppler parameters.

Abdominal MDCT showed multifocal hypodense vessel-sparing lesions in the liver. No other organ was found to be affected (figures 1).

Microbiological cultures of the aspirate from these lesions revealed fungal hyphae identified as *Basidiobolus ranarum* (figure 2).

DIFFERENTIAL DIAGNOSIS

Fulminant graft failure secondary to invasive graft liver basidiobolomycosis causing supervening bacterial sepsis and multi-organ dysfunction.

TREATMENT

Prophylactic fluconazole therapy was changed to treatment dose along with liposomal amphotericin. Due to lack of response to treatment, it was later changed to itraconazole, caspofungin and posaconazole. Progressive multi-organ failure necessitated invasive ventilatory, haemodynamic and renal support.

OUTCOME AND FOLLOW-UP

Despite multiple broad spectrum antifungal treatment, there was no reduction in the size of the lesions and the patient developed graft failure and supervening bacterial sepsis refractory to all supportive measures, ultimately progressing to

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Figure 1 CT image showing multifocal lesions in the graft liver.

Figure 2 Microscopic image of the fungus, *Basidiobolus ranarum*.

Learning points

- ▶ Fungal infections such as basidiobolomycosis can rarely occur in the viscera, including liver, and very rarely in the graft liver, causing severe graft dysfunction.
- ▶ Fulminant fungal infections can also occur in patients who are over-immunosuppressed, as with use of basiliximab, which is used especially in cases of deranged renal functions, as in our case.
- ▶ The lesions are typically vessel-sparing (solitary or multiple), that is, the Doppler parameters and the vessel enhancement remain normal in MDCT.
- ▶ High MELD score, multiple episodes of SBP requiring broad spectrum antibiotics, immunosuppression following basiliximab and the use of a cell saver intraoperatively were postulated as possible risk factors.
- ▶ Visceral basidiobolomycosis is a rapidly progressing disease that can cause early graft failure, after live transplant.

multiorgan dysfunction and his demise in the third week post-transplantation.

DISCUSSION

To date, there has been no reported case of graft basidiobolomycosis following liver transplantation. *Basidiobolus ranarum* is an ubiquitous environmental saprophyte and minor skin trauma is postulated to be its route of entry into humans.³ There is minimal information in the published literature regarding its mode of visceral migration. A very high MELD score (31), multiple pre-operative episodes of SBP requiring broad spectrum antibiotics pre-operatively, severe immunosuppression following basiliximab and the use of a cell saver intraoperatively were postulated as possible risk factors for the development of this rare invasive fungal infection. A consensus on management of visceral basidiobolomycosis is lacking.^{4 5}

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