# HEPATIC GRAFT VERSUS HOST DISEASE IN PATIENTS POST STEM CELL TRANSPLANT

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## Introduction

Hepatic graft versus host disease (GVHD) is a rare but severe complication in patients who received stem cell transplant (SCT) that needs early diagnosis and management by a multidisciplinary team.

## Case Description

40-year-old female with B cell-Acute Lymphocytic Leukemia (ALL) s/p allogeneic stem cell transplant (SCT) stopped taking tacrolimus 3 months ago

Presenting symptoms:

Fever, nausea, vomiting, and jaundice for 7 days.

Also had skin rash but no diarrhea.

Laboratory findings:

- At presentation - AST 124, ALT 69, ALKP 1251, T. Bili 23.9.
- Additional tests - Extensive viral panels (HAV, HBV, HCV, HSV, HEV, EBV, CMV, VZV, Adeno & HHV6), autoimmune, genetic, and metabolic comprehensive workups were unremarkable except for elevated Ferritin and ASMA.

Imaging: MRCP- No biliary obstruction.

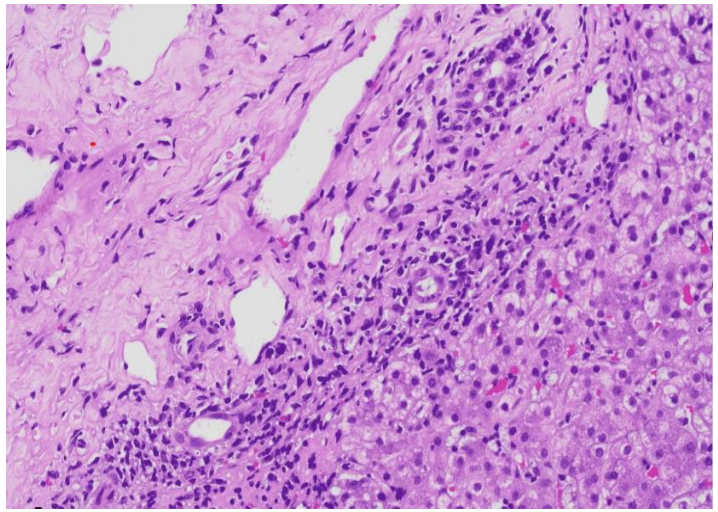
Liver biopsy: Frequent bile ducts destruction with lymphocytic cholangitis and ductopenia in 60% of portal triads with moderate portal-based mixed inflammation consistent with GVHD.

Also had evidence of GVHD from skin biopsy.

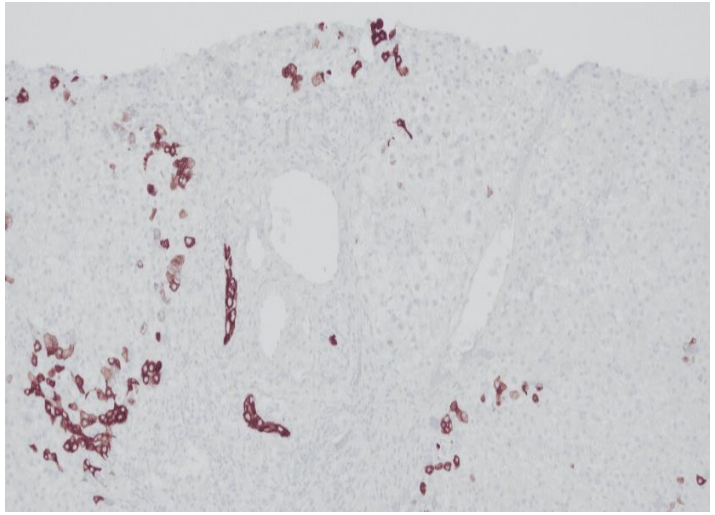
Management: She was restarted on tacrolimus.

Treated with steroids at 2 mg/kg for 5 days and then infliximab 10 mg weekly (2 doses).

Discharge: Ruxolitinib 5 mg as outpatient with close follow-up; given otherwise stable condition and 50% improvement in ALKP since presentation.



A. Bile duct injury identified by intraepithelial lymphocytes, cytoplasmic vacuolization, and nuclear disarray (H&E, 200x)



B. CK7 Immunohistochemical stain showing loss of bile duct and biliary hepatic metaplasia(CK7, 200X)

## Discussion

- Hepatic GVHD is a T-cell mediated disease in which donor T lymphocytes recognize host antigens as foreign producing tissue injury.
- Cumulative incidence of hepatic GVHD is 6.7% in those who underwent SCT.
- Hepatic GVHD present as jaundice and elevated bilirubin and ALKP.
- Diagnosis usually requires liver biopsy. Hallmark histologic finding is bile duct injury. Ductopenia, fibrosis, and ductular proliferation can also be seen in chronic cases. Portal inflammation with or without interface hepatitis or lobular inflammation can also be seen in some patients.
- It is important to rule out other causes of liver dysfunction, including drugs, infections, hepatic sinusoidal obstruction syndrome, and cancer relapse.
- Management for severe hepatic GVHD is high dose steroids (1-2 mg/kg) along with calcineurin inhibitor.
- If there is no improvement within 5 days then second-line agents (extracorporeal photopheresis, IL 2 Receptor antibodies, anti-TNF antibodies, mTOR inhibitors, and MMF) and third-line agents (mesenchymal stem cells, methotrexate, alemtuzumab, pentostatin) are used.
- Ruxolitinib (JAK inhibitor) is one of the newest therapies used for steroid refractory GVHD.

## References

Fiona, L., et al. Br J Haematol 158, 30-45(2012)

Arai, Y., *et al. Bone Marrow Transplant* 51, 96–102 (2016)

Salomao, M., et al. *American Journal of Clinical Pathology* 145, 591–603, (2016)

Malard, F.,et al. *Leukemia* 34, 1229–1240 (2020)

Zeiser, R., et al. N Engl J Med 382,1800-1810 (2020)