Abnormal Liver Enzymes in Thymoma-Associated Multiorgan Autoimmunity

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INTRODUCTION

Thymoma-associated multiorgan autoimmunity (TAMA) is a rare graft-versus-host-like disease that can occur in patients with thymomas.

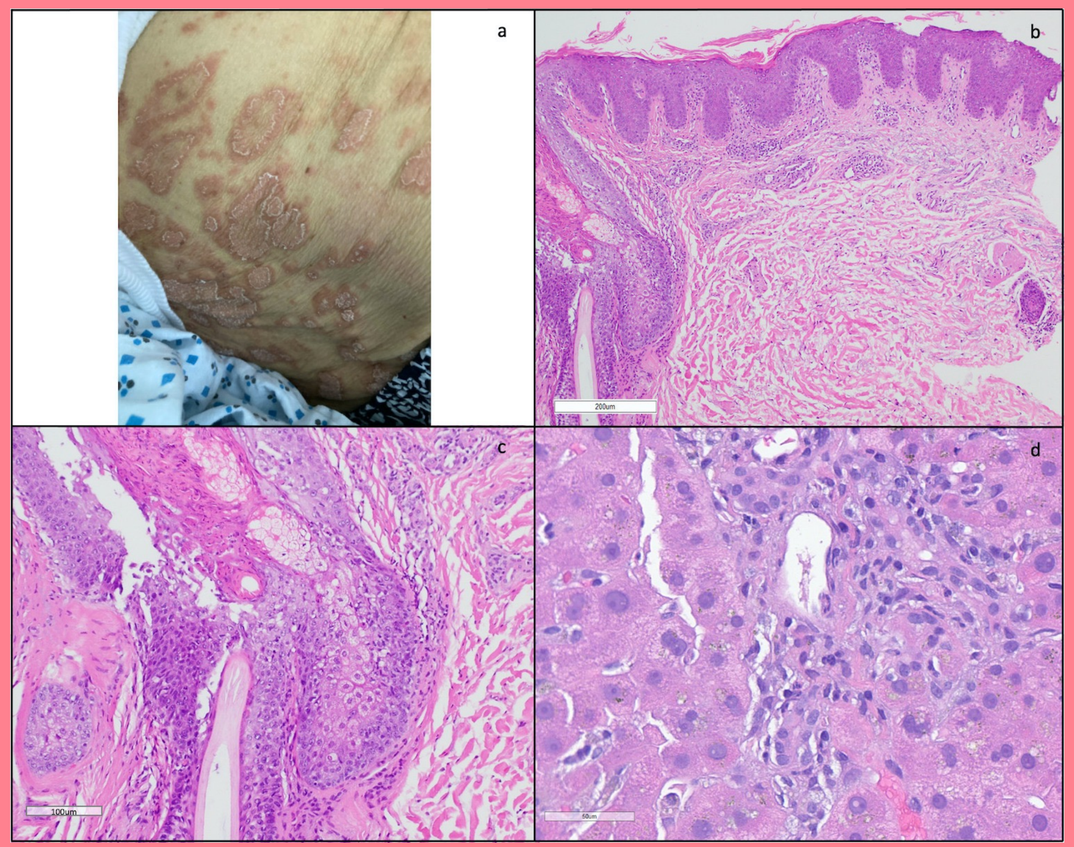
While skin is the most commonly affected organ, it can also involve the **hepatobiliary system**, causing abnormal liver enzymes.

We present a case where abnormal liver function tests (LFTs) were initially attributed to an antibiotic, but were later found to be due to TAMA.

INITIAL CASE DESCRIPTION

- 74-year-old man with myasthenia gravis (MG) and a recurrent **malignant thymoma** presented with shortness of breath. He had recently been hospitalized for methicillin-resistant *Staphylococcus aureus* aspiration pneumonia treated with trimethoprim-sulfamethoxazole (TMP-SMX).
- On admission, he had newly elevated LFTs with a **total bilirubin of 1.7 mg/dL** and **alanine aminotransferase (ALT) of 259 U/L**.
- He was also noted to have a widespread papulosquamous rash most prominent on his thighs, torso, and back (**Figure 1a**).
- The LFT abnormalities were initially attributed to TMP-SMX, but continued to rise despite drug discontinuation.

Figure 1:



- A skin biopsy revealed psoriasiform epidermal hyperplasia accompanied by a lymphocyte-mediated epithelial injury targeting the epidermis, hair follicle, and eccrine apparatus. Superficial and follicular-based dyskeratosis unaccompanied by lymphocyte satellitosis was observed. The skin biopsy was consistent with TAMA (**Figure 1b-c**).
- A liver biopsy demonstrated lymphocyte-mediated injury to the interlobular bile ducts (**Figure 1d**), consistent with either drug-induced liver injury or as a further manifestation of TAMA.

- The patient was started on high dose steroids and anti-thyroglobulin (ATG), but LFTs continued to rise.
- His hospital course was complicated by several episodes of acute hypoxic respiratory failure, and later, severe abdominal pain and hypotension.
- The patient suffered a cardiac arrest during an emergent exploratory laparotomy and was unable to be resuscitated.

DISCUSSION

TAMA is a rare paraneoplastic disease first described in 2007. It occurs much less frequently than other syndromes associated with thymomas, such as MG and pure red cell aplasia. Involvement of the skin, thyroid, liver, and intestines have been documented.

The pathophysiology is not fully elucidated, but is potentially due to the **absence of the autoimmune regulator protein** (AIRE) in 95% of thymomas; AIRE is part of a mechanism which eliminates autoreactive T-cells.[1] Another potential cause is due to **decreased amounts of FoxP3-positive regulatory T-cells** which normally maintain peripheral tolerance.[2]

Treatment is aimed at addressing the underlying thymoma with either surgical resection or ATG, and the autoimmune response with either a corticosteroid or immunosuppressant. However, given the condition's rarity, there are no large studies to support these treatments and **prognosis is poor**.

REFERENCES

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