

Scrub Typhus Presenting as DKA in a Patient of Type 1 DM with Possible Atypical Celiac Disease

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Abstract: We report a case of a young female having Type 1 Diabetes who presented in emergency with DKA. She was found to have scrub typhus as possible reason for precipitation of DKA. Detailed history and evaluation suggested bad obstetric history and possible malabsorption due to underlying celiac disease.

Keywords: Scrub typhus, DKA (diabetic ketoacidosis), Atypical celiac disease, Type 1 DM

1. Introduction

The basic mechanism of diabetic ketoacidosis (DKA) is a relative or absolute state of insulinopenia [1]. Infections and noncompliance with treatment are the most common precipitating factors of DKA in patients with diabetes [1]. Together with vigorous fluid replacement and intravenous administration of regular insulin, prompt evaluation and management of the precipitating factors is necessary for a successful treatment.

Scrub typhus is an acute febrile zoonosis caused by *O. tsutsugamushi*, which is transmitted to humans by the bite of thrombiculoid mites at the larval stage. *O. tsutsugamushi* infection is characterized by fever, rash, eschar, pneumonitis, meningitis, and disseminated intravascular coagulation which leads to severe multiorgan failure in untreated cases. [3]

2. Case Report

27 year old married female with history of Type 1 DM presented in emergency with altered behaviour for 2 days. Patient was talking less than usual, was mostly bed ridden and not eating properly for last 2 days. There was history of fever 2-3 days ago, it was not documented. There was no history of any headache, abnormal body movements, irrelevant talking, loose stools/vomiting etc. Patient was taking insulin for her diabetes management irregularly with poor compliance. On examination in emergency her BP was 60/40mmHg with pulse rate=94/minute. Her random sugar was 489mg/dl. She was having pallor, was poorly responsive, dehydrated and sick looking. On rushing around 1litre of fluids in emergency her BP climbed to 84/58mmHg. Her blood samples were sent to lab, CXR, ECG and NCCT head were found normal. Patient was shifted to ICU and vigorous fluid management with intravenous insulin was started in view of possible DKA. Broad spectrum antibiotics were started. Initial blood investigations came as ABG: Ph: 7.08 pCO₂:21mmHg, Po₂:108mmHg, HCO₃: 9mM/l. Hb was 7g/dl. TLC=12600/mm³ N=75% PLT=303000/mm³. Urine examination suggested 2+ ketones and 4-6WBSs/hpf. Serum proteins as 6g/dl, serum albumin 2.3g/dl, SGOT/SGPT: 5/12IU/L ALP:131IU/L. BUN:20mg/dl, creatinine:1mg/dl. HbA1C:16%. Her serum osmolality was 329mOsm/kg.

IgM scrub was sent next day as part of sepsis work up and it was found positive. doxycycline was added in management. Patient showed gradual improvement in her clinical condition and sugar levels also came to normal. Insulin infusion was stopped and changed to basal-bolus regimen. As part of anemia workup her peripheral smear was done which suggested normocytic normochromic anemia and her B12 levels were also found decreased. serum IgA TTG were sent keeping possibility of celiac disease which were found raised. Retrospectively detailed obstetric history suggested that patient had 3 abortions each at less than 10week of gestation in last 3 years post marriage. Patient was started on gluten free diet.

Patient started having glycemic variability during hospital stay with multiple episodes of hypoglycaemia, general condition of patient worsened over next 3-4 days of hospital stay. She developed pus discharge from a swelling in her left foot, urinary symptoms in form of dysuria and burning micturition also increased. Antibiotics were further upgraded until culture reports. Fresh chest x ray of patient also suggested patchy involvement? ARDS. Patient was planned for upper GI endoscopy and biopsy which couldn't be done due to poor health of patient. BP and SPO₂ of patient started falling and patient was shifted to pressure support in form of ionotrops. Unfortunately patient couldn't be resuscitated and died on 7th day of admission.

3. Discussion

Celiac disease is a common cause of malabsorption of one or more nutrients. A small number of individuals have classic symptoms and manifestations related to nutrient malabsorption along with varied natural history. Much larger number of people have 'a typical celiac disease' with manifestations that are obviously not related to intestinal malabsorption (e.g. anemia, osteopenia, infertility, recurrent abortions and neurological symptoms). Finally even larger number of patients have 'silent celiac disease', they are asymptomatic despite abnormal small intestinal biopsy and serology. [4]

Celiac disease is also associated with DM type 1, IgA deficiency, Down syndrome and Turner syndrome. Clinical importance of the association with diabetes is that, although

severe watery diarrhoea without evidence of malabsorption is most often diagnosed as 'diabetic diarrhoea', assay of antiendomysial antibodies and/or small intestinal biopsy must be considered to exclude celiac disease [4].

In literature few cases only of scrub typhus precipitating DKA have been recorded.

Don Ho et al in 2018 published a paper suggesting such a case of 54 year old woman presenting with DKA precipitated by scrubtyphus. Patient was having classical eschar of scrubtyphus [5].

Two more such reports of scrub typhus patients having underlying diabetes presenting as DKA have been mentioned in literature. [6, 7].

Our patient died possibly due to hospital acquired infection or may be scrub typhus related ARDS , exact reason couldn't be ascertained.

4. Conclusion

This case report firstly emphasizes that scrub can be a precipitating cause for DKA especially in endemic areas. Secondly this case report presents an example of association of Type 1 DM with celiac disease and undiagnosed cases of atypical celiac due to its wide clinical spectrum.

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