

# Initial Presentation of Hereditary Angioedema as Abdominal Pain and Ascites in Puerperium: Case Report

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**SUMMARY** Hereditary angioedema is a rare genetic disorder resulting from an inherited deficiency or dysfunction of the C1 inhibitor. It is characterized by recurrent, circumscribed, and self-limiting episodes of cutaneous and mucous membrane swelling involving different organs. Hereditary angioedema may present with diverse clinical pictures, even within families with the same mutation. We present a first reported case of type 1 hereditary angioedema in a young woman presenting as recurrent abdominal pain associated with ascites without any other clinical features of hereditary angioedema, with initial presentation in puerperium. The recognition or awareness of hereditary angioedema as a cause of acute and/or recurrent abdominal pain associated with ascites is important, and may avoid unnecessary invasive procedures and facilitate appropriate treatment.

**KEY WORDS:** hereditary angioedema, ascites, puerperium

## INTRODUCTION

Hereditary angioedema (HAE) is an autosomal dominant inherited condition. Type 1 HAE is characterized by a low or unmeasurable level of C1-esterase inhibitor (C1-INH), whereas in type 2 HAE, the C1-INH is normal but dysfunctional. Type III HAE, initially designated as an estrogen-dependent HAE, has recently been described in patients with normal C1-INH concentration and function. This type mainly affects women and appears to be triggered by exposure to high estrogen levels. Patients with HAE have recurrent episodes of angioedema, without pruritus, which most often affect the skin or mucosal tissues of the upper respiratory and gastrointestinal tract. Hereditary angioedema is distinguished by its lack of response to therapies for other types of angioedema, including antihistamines, steroids, and epinephrine.

Although edematous swelling of the mucosa in the gastrointestinal tract may cause an abdominal emergency or recurrent abdominal pain (1-8), HAE is seldom considered in the differential diagnosis. However, other types of gastrointestinal involvement are rare. Several cases associated with ascites have been described (5-8), but none as initial onset in puerperium. We describe the first reported case of type 1 HAE in a young woman presenting as recurrent abdominal pain associated with ascites without any other clinical features of HAE, with initial presentation in puerperium.

## CASE REPORT

A 22-year-old woman presented to another hospital with abdominal colic and nausea four

weeks after uncomplicated vaginal delivery with a full term, live birth. Previous history was unremarkable. Physical examination revealed only a temperature of 37.5 °C. Gynecologic examination was unremarkable. Usual laboratory findings showed elevated C-reactive protein (CRP) of 12.3 mg/L (N <5.0 mg/L) and white blood cell count of  $13.0 \times 10^9/L$  (N 4-10). Abdominal, pelvic and transvaginal ultrasonography revealed only moderate volume of free peritoneal fluid. MSCT of the abdomen revealed a small bilateral pleural effusion and moderate volume of free peritoneal fluid. The renal and liver function tests were normal. Chest x-rays, esophagogastroduodenoscopy, echocardiography and laboratory tests for systemic, autoimmune and malignant disorders were unremarkable. C4 levels were very low 0.02 g/L (N 0.1-0.4) and C3 levels were normal. Abdominal pain reduced spontaneously after 3-4 days and she was discharged with a diagnosis of ascites of undetermined cause and abdominal colic. Two similar episodes with ascites that required hospitalization occurred during the next five months.

The patient came to our attention 6 months after the initial presentation and reported occasional nausea and abdominal discomfort. Her family history revealed that her aunt had similar difficulties. The patient denied having edema of extremities, face, genitals, or larynx in the past. She was still breast-feeding. Physical findings and common laboratory tests were unremarkable. C4 and C1-INH levels were decreased (0.02 g/L; N 0.1-0.4; and 0.0317 g/L; N 0.18-0.39, respectively), with normal levels of C1q and C3, which are characteristic of type 1 HAE. Abdominal ultrasonography revealed only a small volume of free peritoneal fluid. At the time, her aunt was diagnosed with type 1 HAE, which completed the diagnosis of type 1 HAE in our patient. The patient declined prophylactic treatment.

## DISCUSSION

Hereditary angioedema is manifested by episodic attacks of nonpruritic, nonpitting angioedema of the extremities, face, and upper airway. The attacks may occur spontaneously or may be precipitated by trauma, anxiety, infections, menstruation, diagnostic procedures (intubation, laparoscopy, endoscopy, surgery) and drugs, especially angiotensin converting enzyme inhibitors and contraceptives (9,10). There is evidence that women with HAE have greatly reduced or absent attacks

in the last two trimesters of pregnancy (11,12), although during the postpartum period, the majority of women experienced increased frequency and severity of attacks (11). It is possible that in our patient, the initial attack of HAE was associated with pregnancy.

Submucosal edema of the intestinal wall may cause abdominal pain, nausea, vomiting and diarrhea. Hemoconcentration, hypovolemia, and even hypovolemic shock can develop from fluid losses, plasma extravasation, and/or vasodilation (13). The pathogenesis of free fluid in the peritoneal cavity remains unclear. Extravasation of intravascular fluid and protein into submucosal structures may be responsible for the fluid effusion (8).

There are two reported cases of recurrent abdominal pain associated with ascites as the only manifestation of HAE, in which the symptoms dated back to childhood (5,6). To the best of our knowledge, this is the first reported case of initial and only presentation of HAE as abdominal pain and ascites in an adult and in a puerpera.

Early recognition of abdominal attacks is of utmost importance because incorrect or delayed diagnosis often leads to unnecessary and potentially dangerous surgical intervention (14).

In HAE types 1 and 2, the treatment of choice in acute attacks consists of replacement with commercially available C1-INH concentrates (15), or, if unavailable, fresh-frozen plasma. Prophylactic treatment with attenuated androgens (danazol, stanozolol, oxandrolone and others) (16), antifibrinolytic agents (17) and/or C1-INH concentrates is instituted if patients are afflicted with frequent and/or severe episodes.

## CONCLUSION

The recognition of hereditary angioedema as a cause of recurrent unexplained abdominal pain with ascites may prevent redundant invasive procedures and hospitalizations and lead to appropriate treatment in other similar cases.

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