Acute primary peritonitis due to group A Streptococci: An unusual cause of peritonitis following vaginal delivery

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Keywords

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Introduction

Group A streptococcus (GAS), also known as streptococcus pyogenes, causes mild infections, the most frequently observed ones are pharyngitis and impetigo in addition to necrotizing fasciitis. However, the incidence of GAS infection is increasing according to several studies and their presentation are becoming more severe (1,2). Streptococcal toxic syndrome which is considered as a rare and dramatic manifestation of GAS infection, could be presented as primary peritonitis in previous healthy patient complicated by a septic shock with multiple organ failure (3). So we present a rare case of an unusual acute primary peritonitis due to GAS following vaginal delivery in a previous healthy patient aged of 37-year-old, in order to highlight the importance of an early good diagnostic in addition to the initiation of an adequate therapy on time with the aim to improve the prognosis which is dark most of the times.

Case presentation

A 37-year-old patient (Parity 3, Gestation 2), without medical history, was admitted four days after vaginal delivery which was spontaneous with lateral episiotomy. It was twin pregnancy. Serologic testing of HIV and hepatitis in addition to vaginal swabs and urine culture were done during pregnancy and were negative. Immediate post-partum period was uneventful and she was discharged after 24 hours.

At admittance, she presented an unspecific abdominal pain with septic shock. Axillary temperature was 36°C. Blood pressure was 80/30 mmHg and she had tachycardia 130/min in addition to marbling and cold limbs. Abdominal ultrasound revealed free intra-abdominal fluid. Fluid resuscitation was started rapidly in addition to the use of catecholamine (The dose of noradrenaline used was from 0.5 µg/kg/min to a maximum of 2 µg/kg/min). She was tachypneic with a respiratory rate of 30 cycle/min. An unspecific bowel infection was suspected and broad-spectrum antibiotic treatment with imipenem 1g, amikacin 20 mg/kg and teicoplanin 400 mg was initiated. Blood test revealed an hemoglobin level of 9.2 g/dl, leucocytes 1540 x 10^3/µL, platelet count 104000 x 10^3/µL, C-reactive protein 340 mg/dL, Creatinine 170 µmol/L, Albumin 12g/dL, in addition to cytolysis and cholestasis. Blood gas revealed a metabolic acidosis (pH=7.12) with high arterial lactate levels of 8.9 mmol/L. The SOFA score was 9.

Emergency exploratory laparotomy was performed. On exploration, there was a large amount of purulent fluid with global venous congestion. However, inspection of the bladder, the uterus, the adnexa and the bowel was without abnormality or any iatrogenic injury. Even the appendix was macroscopically normal. Lavage of the peritoneal cavity was done and pelvic drain was left in place. Mesenteric ischemia was suspected so

heparin 50 mg was administrated and post operatively a CT scan of the abdomen was performed. It revealed intraperitoneal free fluid with paralytic ileus but without any sign of arterial or venous thrombosis. Fluid culture in addition to blood culture were positive for group A streptococci. So finally, our diagnostic was primary peritonitis caused by group A streptococci.

Post operatively and after the achievement of CT scan (figure 1), the patient was transferred to the intensive care unit. Despite all efforts, she remained in septic shock with multiorgan failure and disseminated intravascular coagulation and died within 12h after admission.

Discussion

We presented a rare and unusual case of acute primary peritonitis due to group A streptococci following vaginal delivery. This type of peritonitis is caused by a mechanism which is not completely understood until now, however there were some hypothesis which have been discussed like for example hematogenous infection routes, retrograde inoculation from genitourinary tract or increased translocation of intestinal bacteria (4). In addition to that, some factors would predispose to the development of primary peritonitis like liver cirrhosis, immunosuppression or nephrotic syndrome, but it could also be seen in young and healthy individuals (5).

In the last decades, we noticed an increase of gram-positive bacteria at the expense of gram-negative one as a cause of primary peritonitis. Although Lancefield group A streptococci, which were typically the cause of pharyngitis, endocarditis or erysipelas, are rarely associated with life threatening primary peritonitis (2,6).

According to the previous case reports published, there was a clear predominance of healthy and young females (aged between 30 and 40 years), so ascending infection from genitourinary tract must be considered as the first entry site to suspect (7–9). However, there are other potential entry sites like for example the upper respiratory tract or skin lesions, but in many cases, the source of GAS infection remained unknown (10).

Concerning the clinical presentation, the vast majority of patient described in the literature presented on admission severe abdominal pain with high fever and secondary peritonitis was suspected (11). However, the portal of entry was difficult to be deduced based on the symptoms or physical examination, but in our case, it was probably the genital tract because of the previous vaginal delivery. Although, it remains unclear whether surgical exploration of the abdominal cavity is beneficial or not, especially, for patient with negative CT scan where secondary peritonitis could not be excluded (12,13). Rimawi et al (14) showed that surgical treatment is beneficial in order to treat the streptococcal toxic shock syndrome and it could explain the high rate of exploratory surgery in young patients with acute onset of peritonitis. Thus, in some cases and in order to prevent from surgery, GAS peritonitis could be treated with antibiotics but a rapid antigen detection test should be considered (15). However, Gisser et al (16) reported that despite an early intravenous antibiotics there was no improvement in their patients without surgery. Antibiotic therapy should be initiated rapidly (15) but according to the literature there are few information in addition to little consensus concerning the adequate antibiotic regimens which should be used in case of GAS peritonitis (4). For uncomplicated GAS infection, penicillin is recommended because it is well known that GAS are sensitive to beta-lactam antibiotics (17), however in case of septic patient, broad-spectrum antibiotics will be used and for example in our case, an association of imipenem, amikacin and teicoplanin was used.

Conclusion

We presented a rare case of an acute primary peritonitis due to group A streptococci following vaginal delivery in a young and healthy patient complicated with septic shock and streptococcal toxic shock syndrome. Despite of surgical treatment in addition to the broad-spectrum antibiotics, it had a lethal issue within 12 hours. That is why genitourinary tract should be considered as the main entry site in GAS infection especially on post-partum period and an adequate therapy should be initiated on time.

Declaration

- *Conflicts of interest* : no conflict of interest

- *Authors contribution:*
- Dr Mohamed Aziz Daghmouri: Initial diagnostics and treatment of the patient and case report manuscript
- Dr Fatma Zahra Affes: Initial diagnostics and treatment of the patient and case report manuscript
- Dr Alia Jebri: Initial diagnostics and treatment of the patient
- Dr Raja Boussassi: Initial diagnostics and treatment of the patient
- Dr Sonia Ben Hamouda: Initial diagnostics and treatment of the patient
- Dr Baddredine Bouguerra: Initial diagnostics and treatment of the patient
- Dr Mohamed Houissa: Initial diagnostics and treatment of the patient
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Figure legend

Figure 1: CT-scan of the abdomen showing intraperitoneal free fluid with paralytic ileus but without any sign of arterial or venous thrombosis

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