

Primary peritonitis in a young healthy woman: an unusual case

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Primary or spontaneous bacterial peritonitis is defined as peritonitis in the absence of an evident intra-abdominal infection.¹ We report an unusual case of primary peritonitis that occurred in a healthy young woman.

Case report

A 21-year-old woman presented to our hospital complaining of a sore throat for 10 days and fever, chills, vomiting, diarrhea and abdominal pain for 2 days. She was conscious and alert. Her vital signs were as follows: the respiratory rate was 40 breaths/min, heart rate 140 beats/min and blood pressure 70/50 mm Hg. Despite fluid resuscitation she required vasopressor agents to support her blood pressure. On physical examination there were no abnormalities except for diffuse abdominal tenderness to palpation with nonlocalizing rebound tenderness. No other localizing sites of sepsis were evident.

Initially, her leukocyte count was $1.3 \times 10^9/L$ (band count 0.3×10^9 cells/L). Her International Normalized Ratio was 1.5, and the serum lactate was 4.0 mmol/L. Liver enzymes and lipase levels were within normal limits. Intra-abdominal sepsis was suspected. At laparotomy 3 L of purulent exudate was found, including around the liver, and fibrinous material was found in the pelvis. There was no evidence of a primary intra-abdominal process (e.g., appendicitis or a perforated viscus). No gynecologic disease was identified.

Ascitic fluid drawn for aerobic and anaerobic cultures subsequently grew *Fusobacterium necrophorum* in pure culture. The diagnosis was primary peritonitis.

Her postoperative course was complicated by respiratory failure, coagulopathy and intra-abdominal abscesses. Six days after admission, she was weaned off the vasopressor agents and mechanical ventilation. Because of abdominal collections and bilateral exudative pleural effusions, percutaneous drainage was needed. She was discharged from hospital 30 days after admission.

Discussion

Primary or spontaneous bacterial peritonitis has been reported in patients with cirrhosis, ascites, nephrotic syndrome and systemic lupus erythematosus. Primary peritonitis in the absence of risk factors is uncommon. Only 50 such cases in otherwise healthy adults have been reported. The major infecting organisms in these cases were mostly group A *Streptococcus* and *Streptococcus pneumoniae* (Table 1).

To our knowledge, our patient represents only the second known case of primary peritonitis caused by *F. necrophorum*,² an obligate anaerobic gram-negative bacillus. This organism usually forms part of the normal flora of the oropharynx, gastrointestinal tract and genitourinary tract.³ However, it is also the most common oropharyngeal anaerobe to cause sepsis and bacteremia. Local damage to the mucosa, secondary to trauma, neoplastic growth or synergistic microorgan-

isms may create a favourable anaerobic environment to facilitate growth and invasion of *F. necrophorum*.

Infections secondary to *F. necrophorum* fall into 2 groups: Lemierre's syndrome and bacteremia. Lemierre's syndrome is described as an acute oropharyngeal infection with suppuration of the lateral pharyngeal space, bacteremia and septic thrombophlebitis of the internal jugular vein causing septic embolization with metastatic abscess formation.⁴ Metastatic abscesses in the brain, liver, kidneys and lungs, in addition to pyogenic arthritis and osteomyelitis, can occur. *F. necrophorum* may also affect older adults in whom there is an association with cancer and a portal of entry from the gastrointestinal or urogenital tracts.⁵ Whenever *F. necrophorum* bacteremia is diagnosed in older adults, a thorough examination for cancer is obligatory. *F. necrophorum* infections are associated with high death rates unless treated with appropriate antibiotics.

Table 1

Summary of organisms reported to cause primary peritonitis in healthy adults

Organism	No. of cases
<i>Streptococcus pneumoniae</i>	26
Group A <i>Streptococcus</i>	21
<i>Neisseria meningitidis</i>	11
Nonenteric <i>Salmonella</i>	3
<i>Fusobacterium necrophorum</i>	1

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Our patient complained of a sore throat 1 week before presentation. We do not believe that this was secondary to group A *Streptococcus* because her anti-streptolysin O and anti-DNase B levels were not elevated. Both blood cultures and vaginal swabs gave negative results. It is possible that her infection began in the pharynx and embolized to her peritoneal cavity, resulting in primary peritonitis. However, she did not have the other clinical criteria necessary for a diagnosis of Lemierre's syndrome. The other known case of primary peritonitis resulting from *F. necrophorum* infection was in a 16-year-old healthy young man who also complained of pharyngitis.⁵

We conclude that healthy patients

who present with peritonitis and septic shock need aggressive resuscitation and surgical control. If no source is identified, a diagnosis of primary peritonitis should be considered. Although this condition is rare in healthy people, potential causative organisms include group A *Streptococcus*, *S. pneumoniae*, nonenteric *Salmonella* spp, *Neisseria meningitidis* and *F. necrophorum*. If *F. necrophorum* is grown from the culture specimen, appropriate antimicrobial therapy must include agents with anaerobic activity such as metronidazole, a β -lactam β -lactamase-resistant antibiotic such as piperacillin-tazobactam, a carbapenem or clindamycin.

Competing interests: None declared.

References

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