

Spinal Epidural Abscess Caused by *Bacteroides Fragilis* Group after Dilation and Curettage for Incomplete Abortion

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ABSTRACT

Spinal epidural abscess (SEA) is a rare infection complicated in patients who have some risk factors such as injection-drug use, diabetes mellitus, and several illnesses. However, no case of SEA associated with abortion has been reported. Here we report a case of SEA in a 30-year-old woman after dilation and curettage for incomplete abortion. The diagnosis of SEA was done by MRI and pus was drained after the cervical discectomy. *Bacteroides fragilis* group was cultured from the aspirated pus sample. The patient responded to surgical drainage and antibiotics.

Key words: Abortion, *Bacteroides fragilis*, Spinal epidural abscess

INTRODUCTION

Spinal epidural abscess (SEA) is a rare severe infection and accounts for 2.5–3.0 cases per 10,000 admissions in general hospitals. Several SEA risk factors, such as injection-drug use, diabetes mellitus, and several illnesses have been identified,^[1] however, no report has described SEA associated with abortion. Furthermore, SEA caused by anaerobic bacteria is rare. We report a case of post-abortion SEA caused by the *Bacteroides fragilis* group, which was managed successfully with antibiotics and surgical drainage.

CASE REPORT

A 30-year-old woman was transferred to our hospital for fever and posterior cervical pain. Two weeks before admission, dilation and curettage (D and C) under intravenous anesthesia was performed for incomplete abortion. After D and C, her obstetrician prescribed ampicillin (750 mg/day), however, she took them only one day. She had no symptoms of infection at the time. Three days later, she developed posterior cervical pain, which worsened and caused difficulty in flexing and extending

the neck. Ten days after the operation, she was admitted to the emergency department of another hospital. Physical examination revealed body temperature of 39.3°C; blood pressure, 147/91 mmHg; pulse, 101 beats/min; and respiratory rate, 18 breaths/min. She experienced severe pain and stiffness in the neck. Neither abdominal nor pelvic signs were seen. She did not have any past history and family history of diabetes mellitus. Her leukocytes were elevated to 8100/ μ l and the C-reactive protein (CRP) was positive. She was transferred to our hospital the same afternoon. Physical examination revealed mild weakness in the right upper limb [Medical Research Council (MRC) grade 4]; deep tendon reflexes were slightly decreased. Sensory examination showed numbness in the right upper limb at the level C5-Th1. Neck stiffness was evident, but the Kernig's sign was negative. The liver-function test results and electrolyte levels were normal; however, leukocytes had elevated to 8400/ μ l, and the CRP level had elevated to 9.87 mg/dl. She was seronegative for hepatitis B virus surface antigen, and hepatitis C virus and human immunodeficiency virus (HIV) antibodies. Cerebrospinal fluid (CSF) analysis showed elevated cell count (266/ μ l) and total protein concentration (1,311 mg/dl). Gram staining and blood, CSF and vaginal swab cultures were negative. Chest radiography revealed normal results, and a transthoracic echocardiography showed no vegetation on the valves. Magnetic resonance imaging (MRI) of the cervical spine showed infectious spondylodiscitis at the C5/C6 level and anterior epidural

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Figure 1: Sagittal T2-weighted image shows an anterior epidural mass associated with C5 spondylodiscitis at the C4-Th3 level

abscesses at C4-Th3 with spinal cord compression [Figure1]. Furthermore, T2-weighted images revealed high signal intensity in the spinal cord.

Intravenous injections of ampicillin (12 g/day) and ceftriaxone (4 g/day), and hyperbaric oxygen therapy were administered. Seven days after admission, weakness in the right upper and lower limbs increased (MRC grade 2) and the numbness extended to the right lower limb. MRI showed enlarged epidural abscesses and increased spinal cord compression; therefore, urgent orthopedic surgery was performed. After the anterior discectomy of C5 and C6, pus was drained. Since pus culture revealed *B. fragilis* group, oral metronidazole (1 g/day) was administered in addition to the intravenous antibiotics injection. Postoperative MRI showed resolution of the epidural fluid collection with the spinal cord decompression. The weakness in her limb muscles were improved (MRC grade 4), and the numbness gradually resolved after the operation.

DISCUSSION

In most causes of SEA, at least one predisposing factor such as intravenous drug use, diabetes mellitus, invasive spinal procedures, penetrating spinal trauma, and immunosuppressive therapy is present; however, D and C for abortion as one of the risk factors for SEA has not reported previously.

Bacteremia occurs in approximately 5% of the patients who undergo D and C, and progresses to intrauterine abscess in most cases.^[2] However, some forms of extrauterine abscess after D and C, such as anaerobic breast abscess,^[3] septic arthritis and thigh abscess caused by *β-haemolytic streptococci*,^[4] psoas abscess caused by *Staphylococcus aureus*,^[5] and bacterial

sacroiliitis and gluteal abscess caused by *Streptococcus agalactiae*^[6] have been rarely reported. These manifestations were not associated with any underlying diseases, and most of them eventually required surgical drainage. Although the role of antimicrobial prophylaxis in postprocedural pelvic inflammatory disease prevention has been extensively discussed,^[7] there is no evidence supporting the use of antibiotics for subacute bacterial endocarditis prophylaxis.

A large variety of causative agents for SEA have been identified; however, two-thirds of the causes of pyogenic bacteremia were caused by *Staphylococcus aureus*, and only 2% of the cases were caused by anaerobic bacteria.^[8] The *B. fragilis* group, which includes organisms such as *B. fragilis*, *B. ovatus*, *B. thetaiotaomicron*, *B. uniformis*, and *B. vulgatus*, contains anaerobic bacteria. These bacteria can produce a wide variety of infections with a tendency to form abscesses.^[9] Female genital tract infections caused by these bacteria include bacterial vaginosis, endometritis, and postsurgical obstetric and gynecologic infections. On the other hand, except for extragenital procedures involving D and C, endodonic procedure and vertebroplasty might be one of the risk factors of anaerobic spondylodiscitis, which were resulted from hematogenous spreading from a distant primary site of infection.^[10]

CONCLUSION

In our case, D and C for incomplete abortion might have caused transient bacteremia resulted in spondylodiscitis and hematogenous SEA. Micro-organism in vagina might reach cervical discs through hematogenous spreading from pelvic venous plexus (Batson's plexus) and cause spondylodiscitis and SEA in early days. The patient did not have any risk factors other than the D and C procedure. SEA should be considered a complication of the D and C for abortion. Early imaging could play a crucial role in the treatment of SEA, and a careful history taking and physical examination could allow detection of the infectious source. Although the use of prophylactic antibiotics in intrauterine procedures and in cases of incomplete abortion is controversial at present, further clinical trials to assess the necessity of antibiotic prophylaxis after D and C for abortion is necessary should be considered.

Ethical approval

Patient consent was obtained.

REFERENCES

1. Reihnsaus E, Waldbaur H, Seeling W. Spinal epidural abscess: A meta-analysis of 915 patients. *Neurosurg Rev* 2000;23:175-204.

2. Sacks PC, Tchabo JG. Incidence of bacteremia at dilation and curettage. *J Reprod Med* 1992;37:331-4.
3. Leach RD, Eykyn SJ, Phillips I. Vaginal manipulation and anaerobic breast abscesses. *Br Med J (Clin Res Ed)* 1981;282:610-1.
4. Struthers GR, Scott DL, Farr M. Septic arthritis and thigh abscess after dilation and curettage. *Clin Rheumatol* 1984;3:71-3.
5. Scheepers NJ, van Bommel PF, Bleker OP. Psoas abscess related to spontaneous abortion, intra-uterine contraceptive device and curettage. *Acta Obstet Gynecol Scand* 1993;72:223-4.
6. Yansouni CP, Ponette V, Rouleau D. Bacterial sacroiliitis and gluteal abscess after dilation and curettage for incomplete abortion. *Obstet Gynecol* 2009;114:440-3.
7. May W, Gulmezoglu AM, Ba-Thike K. Antibiotics for incomplete abortion. *Cochrane Database Syst Rev* 2007;4:CD001779.
8. Sendi P, Bregenzer T, Zimmerli W. Spinal epidural abscess in clinical practice. *QJM* 2008;101:1-12.
9. Mader JT, Calhoun J. Osteomyelitis. In: Mandell GL, Bennett JE, Dolin R, editors. *Principles and practice of infectious disease*. 5th ed. Philadelphia: Churchill Livingstone; 2000.p.1182-96.
10. Saeed MU, Mariani P, Martin C, Smego RA Jr, Potti A, Tight R, *et al.* Anaerobic spondylodiscitis: Case series and systematic review. *South Med J* 2005;98:144-8.

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