Two cases of pyogenic spondylodiscitis caused by catheter-related bloodstream infections after gastric surgery

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Abstract
We report two cases of pyogenic spondylodiscitis caused by bacteremia following gastric surgery. [Case 1] An 85-year-old male patient underwent total gastrectomy for gastric cancer. After the surgery, leukocytosis and elevated C reactive protein (CRP) were sustained; however, there was no surgical site infection (SSI). His lumbar pain was present; therefore, we performed magnetic resonance imaging (MRI). Thereafter, he was diagnosed with L3 spondylitis, L2/3 discitis, and bilateral iliopsoas abscess on postoperative day (POD) 33. He has been treated with daptomycin (DAP). [Case 2] A 72-year-old male patient was admitted to our department for post-distal gastrectomy reflux esophagitis. After admission, conservative therapy was continued; however, severe symptoms appeared many times. Then, surgical treatment was scheduled to reduce reflux. When his body temperature (BT) was elevated to 39.1°C before the surgery, vancomycin (VCM) was administered because of suspected catheter infection. Once his BT normalized, fundoplication was performed. On POD 19, his BT elevated again, and the central vein (CV) catheter was removed. On POD 27, he complained of back pain. He was diagnosed with pyogenic spondylodiscitis using MRI. He was treated conservatively with VCM followed by sulbactam/ampicillin (SBT/ABP) based on the result of the culture.

Physicians should be alert regarding possible occurrence of pyogenic spondylitis in patients with back pain or lumbago who have undergone gastric surgery.

Keywords: spondylodiscitis, bloodstream infection, complication

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tomography revealed that the inflammatory change in
the iliopsoas muscle disappeared and discitis improved.
After long-term conservative therapy for about 3 months,
he was shifted to the health facility.

[Case 2] A 72-year-old male patient was admitted
to our department for post-distal gastrectomy reflux
esophagitis. Two years before admission, he underwent
laparoscopic distal gastrectomy for gastric cancer. After
admission, conservative therapy was continued; however,
severe symptoms appeared many times. Then, surgical
treatment was scheduled to reduce reflux. When his
BT increased to 39.1°C before the surgery, vancomycin
(VCM) was administered because of suspected catheter
infection. After his BT normalized, fundoplication was
performed. On POD 19, his BT elevated again and then
central vein (CV) catheter was removed. On POD 27, he
complained of back pain. He was diagnosed with pyo-
genic spondylodiscitis using MRI (Fig. 2). He was treated
conservatively with VCM followed by sulbactam/ampi-
cillin (SBT/ABP), based on the result of culture for more
than four weeks. Once his parameters improved, he was
discharged.

Discussion

The incidence of spondylodiscitis was reported to be
2.4 per 100,000 person-years in a French study\(^2\). The in-
cidence has increased in recent years and is also observed
as a complication after digestive surgery. The reason
might be the widespread recognition of this disease and
advances in diagnostic imaging. Moreover, it indicates an
increase in the prevalence of compromised hosts, such as
elderly patients, dialysis patients, and diabetes patients\(^3\).
The main cause for the development of spondylodiscitis
after gastrointestinal surgery is bloodstream infection
caused by CV or peripheral catheter infection. In case of
poor oral intake after surgery, parenteral nutrition is an
essential technique, and it is necessary to pay close atten-
tion to the prevention of infection.

MRI is a very sensitive diagnostic method; therefore,
MRI has become the gold standard in the evaluation of
pyogenic spondylodiscitis. MRI is reported to have a
sensitivity of 96%, specificity of 92%, and accuracy of
94% in the diagnosis of spondylodiscitis\(^4\). Moreover, MRI
enables early detection of the disease.

Conservative treatment requires the establishment
of an accurate microbiological diagnosis, treatment of
appropriate antibiotics, and spinal immobilization. The
patient should be started on empiric broad antibiotic
therapy based on the clinician’s best assessment of the
likely organism, as well as the patient’s risk factors\(^5\).
A blood culture is useful for microbiological diagnosis,
and its identification rate is reported to be >50%\(^6\). The
incidence of treatment failure was high when parenteral

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Fig. 1 Fat-suppressed T2 weighted image shows a high-
intensity signal at L3 vertebra and L2/3 disc (arrow).

Fig. 2 Fat-suppressed T2 weighted image shows a high-
intensity signal at Th8/9 intervertebral space (arrow).
therapy was administered for <4 weeks\(^7\),\(^8\).

In one of our cases, central parenteral nutrition was not administered; however, poor oral intake caused long-term parenteral nutrition. Antibiotic administration has shown a tendency to reduce abscesses; however, it also needs to improve the immune system of the host to control infection. According to Fukatsu et al., even if there is sufficient nutritional administration, the host's immunity decreases with only intravenous administration. However, reduced immunity can be promptly recovered with enteral nutrition\(^9\). Therefore, in addition to treatment with antibacterial agents, we also started enteral nutrition by placing a nasal tube for nutritional supply. Although it took time to improve the image and to end the inflammatory reaction, it returned to a state where it could be taken orally without causing new infection.

**Conclusion**

We managed two rare cases of pyogenic spondylodiscitis that developed after gastric surgery. Considering the possibility of spondylitis after gastrointestinal surgery, early diagnosis using MRI and adequate administration of antibiotics are important.

**Conflict of interest:**

All authors declare no conflict of interest related of this publication.

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