CASE REPORT

ONLINE EXCLUSIVE

THE PATIENT
45-year-old woman

SIGNS & SYMPTOMS
– Fever and chills
– Diffuse abdominal pain
– Shortness of breath

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The authors reported no potential conflict of interest relevant to this article.

THE CASE

A 45-year-old white woman presented to our emergency department (ED) with a 3-day history of fever, chills, diffuse abdominal pain, severe headache, and shortness of breath.

The patient's medical and surgical history was notable for acromegaly secondary to pituitary microadenoma, pituitary resection, and complete thyroidectomy 4 years earlier. Her medications included lanreotide, levothyroxine, gabapentin, alprazolam, and zolpidem. She had no history of cardiac disease, diabetes mellitus, immunodeficiency, or injection drug use. Three months prior to presenting to the ED, she underwent an outpatient gynecologic procedure for insertion of a levonorgestrel-releasing intrauterine device (IUD) for menorrhagia.

In the ED, the patient had a fever (101.5°F) and an elevated white blood cell count of 13,600/mm^3 (reference range, 4,000–10,000/mm^3). Cardiac auscultation revealed a regular heart rate and rhythm, with normal S1 and S2 sounds without murmur. Electrocardiogram documented normal sinus rhythm with no abnormalities. The physical examination revealed a diffusely tender lower abdomen without rebound or guarding. A pelvic examination was not conducted, and there was no collection of a vaginal swab sample to test for gonorrhea, chlamydia, or group B *Streptococcus* (GBS). Further workups for infection, including urinalysis, lumbar puncture, and chest x-ray, all yielded normal results.

Shortly after she was discharged from the ED, the patient was called to return to the hospital after blood cultures grew GBS; she was admitted for treatment.

THE DIAGNOSIS

A diagnosis of sepsis secondary to GBS bacteremia was made. However, the source of the GBS bacteremia and the patient's abdominal symptoms remained unclear. Further workup included computed tomography (CT) of the abdomen, pelvis, and head, and magnetic resonance imaging of the brain; all imaging revealed no acute findings. Blood work (chem-7 panel, complete blood count, human immunodeficiency virus testing) was unremarkable except for an elevated level of C-reactive protein of 90 mg/L (reference range, 0–10 mg/L).

Radiography confirmed that the IUD was in the correct intrauterine position. However, transesophageal echocardiography (TEE) showed vegetations on the mitral and aortic valves, with preserved cardiac function. A diagnosis of GBS endocarditis was made, and infectious disease specialists were consulted. Because the patient had an anaphylactic allergy to penicillin, she was treated with intravenous vancomycin for 4 weeks. One month later, she had the IUD removed because of persistent abdominal pain.

DISCUSSION

Although the source of GBS bacteremia and endocarditis in our patient remained nondefinitive, the recent insertion of the IUD continued to be the suspected source and leading diagnosis.

Other sources of GBS bacteremia were unlikely based on the examination and imaging results. The patient's abdominal exam was benign, and no intra-abdominal abscess was detected on CT. Although *Streptococcus viridans, S bovis*, and enterococcus are far more common pathogens for infective endocarditis,[1] there was no evidence of dental caries, gastrointestinal pathology, or urinary tract infection to suggest misidentification of bacteria.

Theoretically, GBS bacteremia after a gynecologic procedure is possible since GBS frequently colonizes the vagina.[2] However, most reports document transient rather than persistent bacteremia and/or endocarditis.[3,4]

IUD insertion as a cause of bacteremia. The medical literature offers scant evidence of endocarditis or severe GBS bacteremia related to IUD insertion. Of 124 gynecology-related reports of infective endocarditis between 1946 and 1986, only 3 were associated with IUDs.[5] All 3 women had underlying cardiac disease, and 2 of the 3 had identifiable pelvic infections.[5]

Among 12 case reports of endocarditis related to gynecologic procedures from 1985 to 2003, therapeutic abortion was the most common antecedent event, and no cases were related to IUD insertion.[2] Compared with cases reported before 1985, in these cases most patients (64%) did not have underlying valvular disease, and most had a subacute course with low mortality but high morbidity (8 of 11 patients had clinically significant emboli).[2] The study authors also mentioned a case of endocarditis following a Pap smear test, suggesting that minimally invasive procedures may result in infective endocarditis.[2]

THE TAKEAWAY

Our patient presented with fever, fatigue, and abdominal pain in the setting of recent IUD insertion. She was found to have GBS bacteremia with endocarditis based on TEE and positive blood culture growth. Her clinical situation was suspicious for a gynecologic source of bacteremia.

There is no definitive way to confirm that IUD insertion 3 months prior caused the GBS bacteremia. However, this case illustrates that it is important to consider a usually benign gynecologic procedure as the source of clinically significant persistent bacteremia.

Evidence is insufficient to recommend prophylactic antibiotic use prior to a gynecologic procedure, and it is not recommended by current practice guidelines of the American College of Obstetricians and Gynecologists or the European Society of Cardiology.[6,7]

This patient case raises our suspicion for IUD-related bacteremia as an adverse reaction in healthy women with recent IUD insertion who present with fever and diffuse abdominal pain without apparent signs of a pelvic infection. Prompt antibiotic treatment is necessary to prevent significant morbidity and mortality. JFP

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Although the source of GBS bacteremia and endocarditis in our patient remained nondefinitive, the recent insertion of the IUD continued to be the suspected source.

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