Family Practice Grand Rounds

Perinephric Abscess and Chronic Low Back Pain

Robert C. Davidson, MD, Ernest Lewis, MD, David Daehler, MD, and Karen Tait, MD
Sacramento, California

DR. ROBERT DAVIDSON *(Assistant Professor, Department of Family Practice)*: This morning's Family Practice Grand Rounds concerns a very interesting case. Dr. Karen Tait, who admitted the patient to our Family Practice Service, will present the case. Our discussants today are Dr. Ernest Lewis from the Department of Urology, who was the surgical consultant on this case, and Dr. David Daehler of the Department of Family Practice. We will start with Dr. Tait's presentation.

DR. KAREN TAIT *(Third-year resident in family practice)*: Mrs. L.D. is a 59-year-old woman with a long history of low back pain. Because of frequent complaining, refusal to allow a full examination, and a language barrier, her complaints have been difficult to interpret for both her family and her physician.

Our contact with Mrs. L.D. began when she emigrated from France to live with a daughter in the United States with whom she had had very little contact for many years. Despite their initial lack of closeness, the daughter provided a home for her mother and sought appropriate medical care. Over the following two years, however, the mother remained isolated in their home, failed to learn to speak English, and made no new friends.

Mrs. L.D. underwent a thorough rheumatologic evaluation two years prior to the admission discussed today. At that time, her erythrocyte sedimentation rate ranged from 50 to 60 mm/hr, she was positive for antinuclear antibodies, and a bone scan was suggestive of polyarthritis. It was concluded at that time that she had an unclassified form of an "autoimmune" arthritis, and subsequent management consisted of nonsteroidal anti-inflammatory agents. Followed in the Family Practice Center, she repeatedly complained of back pain and was re-evaluated periodically without any apparent change in her status. Her daughter was admittedly confused about the complaints of pain and what if anything could be done.

The current admission was precipitated by a three-week episode of markedly increased pain similar in nature to the previous episodes. She complained of colicky midline lumbar pain radiating over the anterior thigh to the right knee. This differed from previous bouts only in its intensity and persistence. An associated complaint was that the patient had not had a bowel movement for three days. The daughter felt that she could no longer cope with her mother's behavior. After evaluation in the clinic, the patient was admitted to the hospital for expeditious rheumatologic care and a planned psychiatric evaluation.

Her admission physical examination revealed no new findings. She was afebrile and demonstrated subjective tenderness on palpation of the lumbar spine in the midline area. There was no tenderness over the renal areas of the back, and abdominal examination showed only a mild distension seemingly related to her recent constipation.

From the Departments of Family Practice and Urology, School of Medicine, University of California, Davis, California. Requests for reprints should be addressed to Dr. Robert C. Davidson, Department of Family Practice, University of California, Davis, 2221 Stockton Boulevard, Sacramento, CA 95817.

0094-3509/82/121059-07$01.75

Further physical assessment was rendered virtually impossible by the patient's refusal. She screamed and cried at being touched on any part of her body.

The laboratory findings at admission included a white cell count of 12,200/mm³ with 68 percent neutrophils, 17 percent band cells, 7 percent lymphocytes, 6 percent monocytes, 1 percent eosinophils, and 1 percent basophils. Her hemoglobin was 10.4 g/100 mL and hematocrit 30.3 percent. Her erythrocyte sedimentation rate was elevated to 136 mm/hr. A Chem 20 panel showed a glucose of 218 mg/100 mL and alkaline phosphatase of 149 U/L. Her urinalysis showed color interference from methylene blue, which the patient chronically took for "bladder spasms," proteinuria (2+) and 1 to 3 white cells per high power field.

Over the following 24 hours the patient developed fever spikes to 103°F and a white cell count elevation to 25,000/mm³ with a marked left shift. There was no apparent change in her clinical status, and the patient was unaware of the presence of a fever. Blood and urine cultures were obtained. The patient resisted efforts directed toward elucidating the problem. She stated that the "pressure was too much" and tearfully begged for each segment of the examination to be postponed.

Surgical consultation was obtained, and a computerized tomographic (CT) body scan demonstrated a large right perinephric abscess. The patient was subsequently taken to the operating room, where large quantities of purulent material were drained from the retroperitoneum. The finding of a fecalith suggested that the patient may have had a ruptured retrocecal appendix preceding the development of the abscess. Following surgery she has undergone a rather prolonged hospital course awaiting closure of a persistent coloretroperitoneal fistula.

DR. DAVIDSON: Since we already know the outcome, I think we might review the case in reverse chronological order. I've asked Dr. Lewis to discuss the hospital course and the patient's problem, then we'll review her care in the Family Practice Center.

DR. ERNEST LEWIS (*Associate Professor, Department of Urology*): This patient exemplifies many of the problems encountered in an elderly person with a language barrier and great family and personal anxiety. It is difficult to determine

Continued on page 1064

Continued from page 1060

where to begin. Back pain in an elderly patient is often confusing. The tip-off that there may be a problem in the retroperitoneum, or at least in the genitourinary tract, was the presence of fever. The granulocytosis was a relatively late development. The importance of a flat film of the abdomen when looking for the source of a fever of unknown etiology must be emphasized. There are several essential points to review on an abdominal film. Organ structures show up on the flat film of the abdomen because of different tissue densities. In the normal kidney, ureters, and bladder film (KUB), it is possible to see the psoas shadows, and the renal outline is fairly well demarcated. The first sign in this case was the difficulty in identifying the psoas stripe on the right side. Obliteration of the psoas stripe indicates that some sort of fluid has accumulated in the retroperitoneal space. It could be blood, urine or pus. The second sign was an absence of the renal outline. The patient may not have had a kidney on that side. She had no flank incision, however, so we had no reason to think that a kidney was removed. Third, a curvature of the spine can occur toward the side of the disease as a result of spasm of the paraspinal and psoas muscles. She did not show this. Of the three radiographic signs that could be expected, she demonstrated two of them very nicely. That she had these signs on the KUB and that she was manifesting the signs and symptoms of a collection of purulent material somewhere led us to suspect perinephric abscess.

An intravenous pyelogram (IVP) showed two kidneys, which was reassuring. The renal outline on the left appeared normal; however, the lower pole of the right kidney was confusing. On review of the CT scan, the right renal shadow blended into a large mass that appeared to fill the entire right retroperitoneal area. Close examination of the CT scan showed tiny stippling due to air pockets. These pockets are often seen in closed space abscesses with organisms, such as Escherichia coli, that produce gas. It was on the basis of these findings that we elected to explore the patient and drain the abscess.

DR. DAVIDSON: Dr. Lewis, would you discuss the diagnosis and treatment of retroperitoneal abscess?

Continued on page 1066

Continued from page 1064

DR. LEWIS: There has been little new information about this disease during the last 30 years.[1] Frequently a retroperitoneal abscess presents with symptoms similar to those seen in this case. It is often manifest in an elderly patient and has an insidious onset. The patient gradually becomes ill, but often not rapidly enough to perceive that something has changed. This point needs to be stressed. Early diagnosis is often difficult. When a perinephric abscess is drained of a large amount of foul-smelling material, it may seem incredible that the patient did not describe more symptoms. This discrepancy is characteristic of perinephric abscess and retroperitoneal abscesses in general. Anderson and McAnich[2] recently reviewed the characteristics of this disease. They point out that there is often delay between the presentation of the patient and the time the diagnosis is made. Perinephric abscess is not a common disease and must be pursued in an orderly fashion.

Modern diagnostic modalities greatly assist the diagnosis. The CT scan is quite helpful, but it is not the answer to all diagnostic problems. First, review a plain film of the abdomen and look for the three signs previously described: curvature of the spine, obliteration of the psoas shadow, and obliteration of the renal outline. Next, perform an IVP to evaluate the kidneys, looking for something like a renal cortical abscess. Then use the CT scan, if you can get it rapidly, to confirm the diagnosis.

The treatment is the same as it has always been: incision and drainage. The abscess must be drained adequately. In this particular case, the perinephric abscess was secondary to pathology in the bowel. It was of interest that this particular patient had been secretly mailed "arthritis medicine" from France, which turned out to be steroids. Complicating the diagnosis, the steroids may have been of etiologic significance in that a perforated bowel led to the perinephric abscess.

DR. DAVIDSON: When do you think Mrs. L.D. may have perforated her bowel and started the abscess?

DR. LEWIS: These problems often have a long history.[2] She may have perforated the bowel when her symptoms began to increase. Her symptoms did not elicit new complaints. Her complaints were just more shrill than they had been in the past.

DR. DAVID DAEHLER *(Assistant Professor,*

Department of Family Practice): I might comment that in an elderly individual, appendicitis many times does not follow the typical pattern. The patient may not have an elevated white cell count, may not run a high fever, and may have minimal abdominal tenderness. The issue becomes more confusing in the patient on steroids.

DR. LEWIS: You are absolutely right. At surgery we thought she had a perforated retrocecal appendix. Pus accumulations in the elderly patient with bowel catastrophies are extremely subtle. In some of the early series on perinephric abscesses, the diagnosis was often made at autopsy because of the difficulty in making it.

DR. DAVIDSON: Let's review this patient's care prior to coming into the hospital. Mrs. L.D. came to the United States relatively late in her life. She had some obvious cultural adjustment problems. She spoke French only, which unfortunately complicated her care in the Family Practice Clinic. She was living with a daughter whom she had not seen for many years. She was followed in the Family Practice Center for two years with a number of visits. Her chief complaint was consistently low back pain. Dr. Daehler, will you review low back pain in elderly people?

DR. DAEHLER: Low back pain is one of the common complaints seen in the elderly population. The basis of this complaint is not always clear. Much low back pain is attributed to arthritic change in the lower spine. Many people with extensive arthritic changes of the spine that show up on x-ray examinations, however, have no complaints. Other people with open foramina and well-spaced vertebral bodies have significant complaints of pain in the low back, suggesting nerve root irritation. Many of the elderly have some foraminal encroachment on the nerve roots with associated arthritic changes, and these can lead to pain and discomfort.[3]

In evaluating the back, it is helpful to think of the elements that can produce pain.

1. The longitudinal ligament running up and down the spinal column is a potentially painful structure. Pressure or strain on that structure does cause low back pain with associated low back muscle spasm and may give nerve root referral of the pain. The pain is usually in the distribution of the sciatic nerve down the posterior thigh. This patient presented with pain down the front of the thigh.

2. A second potentially painful structure in the back is the nerve root. The CT scan can show even minor swellings of the annulus fibrosis. Swelling or bulging of disc material posteriorly can cause pressure on the nerve root and produce pain in the sciatic distribution. Again, it may be pressure on the longitudinal ligament that is a factor rather than actual pressure on the nerve root.

3. A third potentially painful structure is the synovial lining of the facet joints. A finger immobilized in a splint for three weeks will be painful when the splint is removed. Many older people are much less mobile, and their facet joints stiffen. When they start to stretch, they may have pain in these facet joints. Although it is the synovial lining that is painful, referral of that pain along the nerve root distribution is not uncommon.

4. Another cause of pain in the back may be the muscle and ligamentous structures. An acute back strain will usually have a history of recent trauma, perhaps from sitting down hard or lifting. The pain of acute strains is usually paravertebral rather than in the midline and usually is elicited only by deep palpation or on stretching of the strained structures. It is rare in any of these conditions that the back is so painful it cannot be touched.

5. Bone can also be a source of pain. Osteoporosis commonly occurs in the elderly and may lead to partial collapse of vertabrae. Microfractures of the vertabrae may frequently occur in the elderly[3] and often follow an acute strain. An incident as minor as stepping hard off a bus onto a curb or lifting suitcases up to a shelf can cause microfractures and cause back pain localized to the spinal column.

In most of these conditions, the person will lean away from the involved side. For the irritation from perinephric abscess the patient will lean toward the side of the involvement to decrease the pressure on the painful swelling.

In a case like Mrs. L.D., it is impressive how easy it is to identify a patient with a certain problem. A complete re-evaluation of such an individual is periodically indicated to determine whether there is something else that might be involved.

DR. DAVIDSON: Dr. Daehler, what would you advise as a minimum workup for a 59-year-old woman, who does not speak English, who is coming to the family physician complaining of low back pain?

DR. DAEHLER: Low back pain is a common

complaint. X-ray examination is not necessary on the first visit in all patients with back pain. A good examination, keeping in mind the potentially painful structures, is the first priority. A complete blood count and urinalysis should be done as well as a chemistry panel. Added to this should be a sedimentation rate, antinuclear antibody test, and RA-latex. Make sure the uric acid is included in the chemistry panel. For initial treatment, I use anti-inflammatory agents and muscle relaxants as indicated. If the patient continues to come back and does not seem to be improving, an x-ray examination is indicated. If a bone fracture is suspected, a bone scan is of more value than routine x-ray films.

DR. DAVIDSON: Let's go to the point where the patient's pain increased and changed in character. Apparently, Dr. Tait, there may have been some question whether admission to the hospital was necessary.

DR. TAIT: There was a great deal of discussion whether this was an appropriate admission. It was felt to be a so-called "social admission," since the daughter was having difficulty coping with her mother's behavior.

DR. DAVIDSON: An important aspect of this case was the difficulty we had communicating with the patient. It was therefore important to do a more thorough biomechanical evaluation for her than it would have been for a person able to communicate with the physician. There were some findings with her that, at least in retrospect, would suggest that a hospital admission was indicated. Her pain had changed, and it was not typical of low back pain; namely, it was referred to the anterior portion of the legs rather than the posterior portion of the legs. Also, she had some laboratory findings suggestive of an acute process.

Once the decision to admit the patient to the hospital was made, would you have changed the diagnostic workup?

DR. TAIT: After admission, I think the patient was well managed. Interestingly, her admission laboratory results were fairly unremarkable. It wasn't until the next day that there were such alarming findings as a white count of 25,000/mm^3. The sedimentation rate at admission was of concern, yet for someone with a diagnosis of autoimmune arthritis, the rate wasn't too surprising. In her case the workup went quickly to the CT scan because there was such difficulty with other tests, and it was necessary to get the greatest benefit possible in the shortest time with the least number of painful tests. An ultrasound of her retroperitoneum would have been helpful, but she would not have tolerated that kind of examination. So, working backward, the CT scan was done first, followed by the intravenous pyelogram.

DR. LEWIS: Let me reiterate the importance of this patient's anterior thigh pain. Pain in the anterior thigh is a characteristic finding of psoas muscle irritation, and psoas irritation seldom comes from a problem in the back. A useful procedure is the "leg off the side of the examining table," taught in physical diagnosis. Move the patient to the side of the bed and drop the entire limb off the side, thus stretching the psoas muscle. If the patient has a problem affecting the psoas, this maneuver will bring out anterior thigh pain.

DR. DAVIDSON: I want to open the discussion now to questions from the audience.

FAMILY PRACTICE RESIDENT: Was an interpreter used with the patient? Was the daughter able to do this?

DR. LEWIS: Yes, the daughter was the interpreter. However, part of the difficulty was the tremendous amount of guilt we perceived in the daughter. It was hard to know when simultaneous translation was going on and when editorialization was occurring. There was a lot of "Mother said this, but I think," in the history.

DR. DAVIDSON: Could we have obtained an interpreter other than the daughter?

DR. TAIT: We did have a hospital interpreter, and she was very helpful during the workup. After the operation the patient's behavior was not inappropriate. She was a little hard to work with at times, but she was dramatically better than she was when first admitted to the hospital.

DR. LEWIS: She settled down, and although it was not easy to communicate with her, she was very pleasant.

FAMILY PRACTICE RESIDENT: Why were there no more abdominal findings?

DR. DAEHLER: It is not unusual for elderly people with peritonitis to have minimal or referred pain. This woman had a history of low back pain. When she experienced pain, it was interpreted by her again as a pain low in the back. Even if the major pain was in her abdomen, she may have assumed that it was coming from her back.

Continued on page 1070

Continued from page 1068

DR. LEWIS: I have been fooled more than once. Patients will present with abdominal findings suggestive of an intra-abdominal process, and they have lower lobe pneumonia. It can very closely mimic an abdominal disease.

DR. DAVIDSON: Or it can mimic an ascending cholangitis, which is another disease difficult to diagnose.

DR. LEWIS: There was a suggestion on one of her films that she might have gallstones. That was another possibility.

FAMILY PRACTICE RESIDENT: How do you explain the initial laboratory data on admission?

DR. LEWIS: I reiterate that perinephric abscess is difficult to diagnose. To me, leukocytosis and fever mean bacteremia. A patient may have a retroperitoneal abscess with a benign course for varying amounts of time. When bacteria eventually invade the blood stream and get into the abdominal cavity, the findings become more dramatic.

DR. DAVIDSON: What's happening with this patient now?

DR. LEWIS: She is currently being followed and is having a prolonged problem with closure of a bowel fistula. We will need to establish that she has no distal bowel obstruction.

DR. DAVIDSON: Let me summarize some of the important points of this case. First, it is important to avoid labeling patients and to perform periodic re-evaluation of chronic complaints such as low back pain. Second, it is important to have good communication or, if language is a problem, to obtain a translator other than a family member. Third, it is important to have a high index of suspicion about perinephric abscess in elderly patients. Finally, it is important to obtain a plain film of the abdomen in evaluating fever or vague complaints in the back in elderly patients.

References

1. Harris L, Sparks JE: Retroperitoneal abscess, case report and review of the literature. Dig Dis Sci 25:392, 1980
2. Anderson KA, McAnich J: Renal abscesses: Classification and review of 40 cases. Urology 16:333, 1980
3. Coilliet R: Low Back Pain Syndrome. Philadelphia, FA Davis, 1968