Rare Synovitis Remits With Radiotherapy

BY BRUCE JANCIN
Denver Bureau

DENVER — Moderate-dose radiotherapy is highly effective in achieving sustained remission in patients with high-risk pigmented villonodular synovitis, Brian O'Sullivan, M.B., said at the annual meeting of the American Society for Therapeutic Radiology and Oncology.

Through 20 years of experience in managing this proliferative disease, he has concluded that the best approach is surgical gross total removal of the lesion followed by radiotherapy (RT). But when surgery is likely to compromise function, RT alone will achieve control of gross disease, according to Dr. O'Sullivan, a radiation oncologist at Princess Margaret Hospital and professor of radiation oncology at the University of Toronto.

'The problem is, if you let this disease persist and it continues to grow, it will destroy the joint.'

DR. O'SULLIVAN

Pigmented villonodular synovitis (PVSN) is a rare monoarticular proliferative process originating in synovial membranes. Although it can affect any mobile joint, the knee is the most common site. Lesions can also arise in bursae or tendon sheaths. PVSN can be a destructive process involving invasion of cartilage, bone, and adjacent tissues, with resultant major loss of function and, occasionally, amputation. Its treatment poses technical challenges, especially in patients with large circumferential lesions of the knee, for whom the goal is to deliver enough RT to control the disease while sparing some of the often limited quantity of normal tissue.

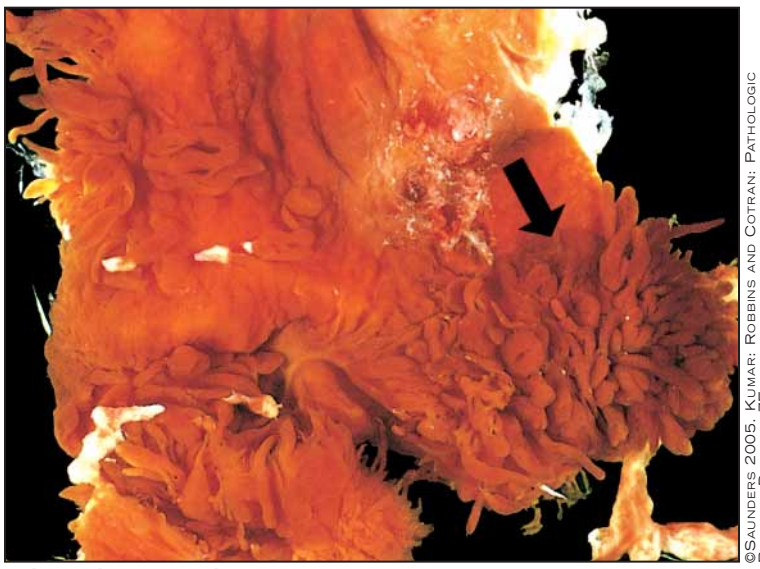
"I get more calls about PVSN than any other disease I treat," the physician said.

The classic PVSN scenario involves a swollen joint with episodes of painful acute swelling related to acute hemarthrosis. "It often mimics the type of joint a hemophiliac patient has," said Dr. O'Sullivan.

PVSN comes in two forms. Nodular PVSN consists of a pedunculated lesion surrounded by normal synovium. The diffuse form is far more problematic, with recurrence rates of 50%-90% quoted in various series. The arthroscopic appearance of diffuse PVSN typically features a shaggy "large beard" villous proliferation with a thickened, overgrown synovium, often accompanied by bony scalloping or erosion.

Dr. O'Sullivan presented a series of 41 patients with PVSN who were prospectively followed for a mean of 77 months after RT. Of these, 23 presented with recurrent disease for which they had undergone a mean of two prior surgical procedures. The other 18 had what he described as "primary disease of prodigious proportions." The lesion originated in the knee in 15 patients, and in another joint in 21 others; in 5 patients the disease arose in a periarticular tendon sheath. All patients had the poorer prognosis (diffuse) type of PVSN. All but one had both intra- and extraarticular disease. Three-quarters of the lesions were larger than 5 cm, and 17 were larger than 10 cm.

The RT regimen has evolved over time. Dr. O'Sullivan has settled on a dose of 40 Gy administered in 20 fractions over 3 weeks as optimal. This is supplemented by a final 8-Gy boost to the area of fullest disease. Arthroscopic surgery port sites also get a bolus, because he has observed that PVSN preferentially spreads there.



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This excised synovium demonstrates the fronds and nodules that are typical of pigmented villonodular synovitis.

At a mean of 77 months, 40 of 41 patients remain in good local control as defined either by an absence of clinical and imaging evidence of disease in patients free of overt disease at the time of RT, or by stable disease on serial follow-up imaging studies. One patient developed lesion growth starting 4 years post RT. Functional status was deemed good in 31 patients and adequate in 5. Both patients whose functional status was rated as poor had significant preexisting bone involvement. There have been no RT-induced neoplasias.

In response to audience questions, Dr. O'Sullivan said he often holds off on RT until he can evaluate the tempo of the disease. But he tends to intervene early in large progressive knee and hip lesions. "The problem is, if you let this disease persist and it continues to grow, it will destroy the joint," he warned. ■

Spinal Disk Replacement Neck and Neck With Spinal Fusion

BY MITCHEL L. ZOLER
Philadelphia Bureau

PHILADELPHIA — Spinal disk replacement was at least as effective as conventional spinal fusion for treating patients with degenerative disk disease in results from several studies reported at the annual meeting of the North American Spine Society.

Although total disk replacement with a prosthesis is still in development—and so far initial studies have shown it to be no better than spinal fusion—experts believe that arthroplasty has several potential advantages that are fueling interest in this option.

There is the view that both types of repair will play a role. "You can't categorize all patients together. Some patients will need fusion, but for the majority of patients arthroplasty will be better in the long run," said James J. Yue, M.D., an orthopedic surgeon at Yale University in New Haven, Conn.

Two randomized studies reported at the meeting compared cervical-disk replacement with spinal fusion. One study included 22 patients who had single-level, anterior, cervical diskectomy and fusion with allograft bone and anterior plating, and 24 patients who had single-level, disk replacement using the ProDisc-C prosthesis. Synthes Spine is developing the ProDisc-C for cervical disk replacement and the ProDisc-L for lumbar disk replacement, and the company sponsored the studies with these devices.

Patients were followed for 2 years, and were assessed periodically during follow-up by the neck disability index, short-form-36, a visual analog scale, and by range of motion.

By most of these measures, spinal fusion and arthroplasty showed no significant differences in outcomes at most follow-up assessments. Disk replacement showed a significantly better improvement in neck disability index, compared with fusion after 12 months, but this advantage disappeared during later follow-up, Michael E. Janssen, D.O., and associates reported in a poster at the meeting.

Patients who received the prosthetic disk had less arm pain than the fusion patients after 3, 6, and 12 months of follow-up. Patient satisfaction was significantly higher among the arthroplasty patients, compared with the fusion patients at 6 months after surgery.

No patients in the disk-replacement group had a serious adverse reaction, and there were no device-related issues. Patients who had disk replacement had improved mobility and range of motion following their surgery, said Dr. Janssen, an orthopedic surgeon at the University of Colorado in Denver.

The second cervical study included 21 patients and had a very similar design. After up to 2 years of follow-up, the 11 patients treated by cervical disk replacement had very similar outcomes to the 10 patients who were treated by spinal fusion, Anthony M. Petrizzo, D.O., an orthopedic surgeon at New York University, and his associates reported in a poster.

The two trials comparing lumbar-disk replacement with spinal fusion also had a similar design. One study reported the outcomes of patients with two-level degenerative disk disease. Sixteen patients were randomized to total disk arthroplasty with the ProDisc-L and 8 patients were randomized to circumferential spinal fusion. Another 12 patients with two-level disease were treated with arthroplasty on a nonrandomized basis.

After an average follow-up of 18 months, pain and function were similar in the two groups of patients, who were assessed using a visual analog scale of pain, the Oswestry disability index, the short-form 36, and range of motion tests.

The Oswestry score fell from 70 at baseline to 43 in the arthroplasty patients, and from 64 to 36 in the fusion patients, reported Dr. Petrizzo and his associates in a second poster.

The second comparison study focused on patients with single-level, lumbar-disk disease. Nine patients were randomized to fusion, and 18 were randomized to arthroplasty with a ProDisc-L. An additional 38 patients were treated by arthroplasty in a nonrandomized phase of the study.

During an average follow-up of 1 year, periodic assessments by the same measures used in the two-level study showed no significant differences in response between the two groups, Dr. Petrizzo said during an oral presentation at the meeting.

A fifth study reviewed 22 patients aged 60 or older who received a ProDisc-L to repair lumbar disk disease. The group included 17 patients with single-level disease, 4 with two-level disk degeneration, and 1 patient with three-level disease. Their average age was 63 years.

After a minimum follow-up of 2 years and an average follow-up of more than 34 months, the patients had significant improvements in their Oswestry disability index and pain scores, Dr. Yue said. Significant improvements in the Oswestry score did not appear until patients were followed for at least 1 year. The rate of patient satisfaction was 91%.

Four patients (18%) had complications. Two patients had neurologic complications: one developed a partial foot drop and recovered, the other developed complete foot drop and did not recover. Two other patients had partial implant subsidence. No patients had vascular complications.

"Artificial disc replacement in the elderly is controversial and cannot be generally recommended at this time, especially in patients with circumferential spinal stenosis," Dr. Yue said. ■

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