closed claim study

Failure to diagnose and treat osteosarcoma

by Barbara Rose and Laura Brockway

The following closed claim study is based on an actual malpractice claim from Texas Medical Liability Trust. This case illustrates how action or inaction on the part of physicians led to allegations of professional liability, and how risk management techniques may have either prevented the outcome or increased the physician's defensibility. The ultimate goal in presenting this case is to help physicians practice safe medicine. An attempt has been made to make the material less easy to identify. If you recognize your own case, please be assured it is presented solely to emphasize the issues of the case.

Presentation

A 16-year-old girl came to the emergency department complaining of pain in her right lower leg. She reported that she had hit her leg just below the knee and that her leg became bruised and swollen and continued to hurt. The nurse noted an 8 cm swollen area just below the right knee. An x-ray of the lower leg was ordered and read by the on-call radiologist. His impression was "poorly defined area of increased density with evidence of cortical erosion and soft tissue ossification in the proximal right tibia which could represent a primary bone neoplasm such as osteogenic sarcoma. Further evaluation is recommended." The patient was told to follow up with her family physician.

Two days later, the patient and her mother came to their family physician's office. The patient reported continued leg pain. In the chart for this office visit, the physician noted he had spoken with the ED radiologist and the radiologist said the patient had "a probable tumor of the right tibia, probably an osteosarcoma." On exam, the physician reported a 4- to 6-cm diameter area of swelling over the proximal tibia. His impression was "probably osteosarcoma," and he referred the patient to an orthopaedic surgeon.

Physician action

Five days later, the patient was seen by an orthopaedic surgeon (the defendant in this case). He reviewed the emergency room x-rays and ordered new x-rays. His impression was the patient had a subtle fracture of the proximal tibia with some evidence of healing, i.e., a periosteal bone reaction. He put the patient's leg in a cylinder cast that was to stay on for six weeks. The patient was to return in four weeks. He noted in the chart that the patient had been told that "there could be a tumor there," and he stated, "I do not see evidence of that."

When the patient returned four weeks later, she complained of increased pain and tenderness. She also reported having been kicked in the leg a few days before the office visit. X-rays taken that day revealed "abundant calcific reaction in the soft tissues that has not been present previously." The physician noted the patient was developing a hypertrophic calcification, and he placed her leg in a knee immobilizer. He prescribed Vioxx and told the patient to return in two weeks.

As scheduled, the patient returned and continued to complain of pain in the right leg. Upon exam, the physician found minimal tenderness below the right knee, but the area was "firm and somewhat enlarged." After reviewing the x-rays taken that day, the physician stated, "fracture of the proximal tibia has healed. Heterotopic ossification is noted. It is increasing." He prescribed Indocin and asked the patient to return in three weeks.

Three weeks later, the patient returned and reported continued pain. When he examined the patient, he noted a palpable mass just below the knee. X-rays were again taken and the physician interpreted them as showing heterotopic ossification of the proximal right tibia. The patient was instructed to continue taking Indocin and return in one month. The patient never returned to this physician.

Three weeks after her final appointment with the orthopaedic surgeon, the patient visited another family physician in a neighboring town. She complained of leg swelling and pain. The family physician ordered an MRI that was performed two days later. The radiologist stated that the findings from the MRI were "highly suggestive of osteosarcoma." He recommended a tertiary care referral, and discussed these results with the family physician and the orthopaedic surgeon.

The patient was ultimately seen by an orthopaedic oncologist. A biopsy confirmed osteosarcoma and a CT scan revealed bilateral pulmonary metastasis, with as many as eight pulmonary nodules. Although the leg tumor was reduced 95 percent with initial chemotherapy, the oncologist recommended an above the knee amputation in an effort to rid the leg of cancer. The amputation was performed without incident. The patient has subsequently undergone three operations to remove the nodules from her lungs and has been through four cycles of chemotherapy. Her prognosis is very grave.

Allegations

The plaintiff alleged the orthopaedic surgeon was negligent in failing to diagnose osteosarcoma, resulting in a 16-year-old girl having her leg amputated above the knee. There were no allegations that a more timely diagnosis would have increased the patient's chance for survival. The damages revolved strictly around the loss of the leg.

Legal implications

TMLT was unable to locate expert testimony completely supportive of the defendant's care. The defendant himself conceded that he missed the diagnosis and repeatedly expressed his desire to have the case resolved.

There was great debate among the physicians consulted — three general orthopaedic surgeons and two orthopaedic oncologists — as to when the physician should have become suspicious and

continued on page 12

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continued from page 11

ordered additional testing. The orthopaedic oncologists stated that additional testing should have been ordered on the patient's first visit based on the radiologist's suspicion of tumor. The two orthopaedic surgeons stated that additional testing was not required at initial presentation, but was necessary when the patient continued to complain of pain after the casting. None of the experts were supportive of the defendant's care after the second visit when findings inconsistent with fracture and heterotopic ossification were present.

One of the main issues for the defense became whether or not an earlier diagnosis would have allowed for a limb salvaging procedure instead of amputation. The patient's orthopaedic oncologist testified that he could have saved the patient's leg if the defendant had made a more timely diagnosis. This opinion was based on his review of the x-ray taken at the emergency department. However, the oncologist admitted on cross-examination that he had never recommended a leg salvage procedure based solely upon plain films. He stated that CTs and MRIs are necessary to evaluate the size of the tumor and the involvement of the vessels and nerves. The defense was able to locate an expert who testified that the patient's leg was not salvageable. His opinion was also based on the emergency department x-ray. The issue of limb salvage became one of "dueling experts," and it was impossible to definitively state whether the patient was a candidate for limb salvage surgery when she first saw the defendant.

Disposition

With the consent of the orthopaedic surgeon, this case was settled for an amount in the mid-six figures. The lack of a completely supportive defense expert, the subsequent treater's criticism of the defendant, and the sympathetic nature of the patient's condition were all factors in the decision to settle this case.

Risk management considerations

In retrospect, as the series of medical care visits started for this patient, one still cannot ignore the words on the first x-ray report " . . . could represent a primary bone neoplasm such as osteogenic sarcoma. Further evaluation is recommended." Several actions did not occur. The emergency department did not contact the family physician to request an order for more imaging studies. Once seen by her family physician and referred to the defendant, the primary care physician did not call the orthopaedic surgeon and share his concerns regarding the x-ray findings. This report was in the orthopaedic surgeon's medical record of the plaintiff. It was not evident the report had been reviewed as there were no physician's initials, date, or comments regarding the findings and impression.

Contemplating prudent practice and risk management in this claim revealed two issues. Communication between physicians was a weakness and became the foundation for exposure and liability when this unfortunate outcome occurred. The need for every practice to have a follow up system to ensure that all reports are reviewed and acted on in a timely manner was evident.

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