

Coding for Musculoskeletal System and Connective Tissue Diseases

Chapter Outline

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Back and Spine Disorders

Connective Tissue Diseases

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Systemic Sclerosis

Testing Your Comprehension

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Objectives

- ▶ Describe the pathology of common musculoskeletal and connective tissue diseases.
- ▶ Recognize the typical manifestations, complications, and treatments of common musculoskeletal and connective tissue diseases in terms of their implications for coding.
- ▶ Correctly code common musculoskeletal and connective tissue diseases by using the ICD-9-CM and medical reports.

Musculoskeletal and connective tissue diseases are classified in code section 710 to 739 of chapter 13 of the Disease Tabular of the ICD-9-CM, which includes diseases of the bones, muscles, joints, soft tissues, ligaments, tendons, and cartilage. To assist in your understanding, Table 11.1 reviews word parts and meanings of medical terms related to common musculoskeletal and connective tissue diseases.

Table 11.1 Word Parts and Meanings of Musculoskeletal and Connective Tissue Terms

Word Part	Meaning	Example	Definition of Example
arthr/o	joint	arthritis	Inflammation of a joint
oste/o	bone	osteoarthritis	Inflammation of a bone and joint
my/o	muscle	fibromyalgia	Pain of fibrous connective tissue and muscle
cost/o	rib	costochondritis	Inflammation of rib and cartilage
spondyl/o	vertebra (singular), vertebrae (plural)	spondylosis	An abnormal condition of the vertebrae
myel/o	bone marrow; spinal cord	osteomyelitis; myelogram	Inflammation of bone and bone marrow; radiograph of the spinal cord
fasci/o	fibrous tissue covering and separating muscle	fasciitis	Inflammation of fascia (fibrous tissue surrounding muscle)
chondr/o	cartilage	costochondral	Referring to ribs and cartilage
lamin/o	lamina (part of vertebral bone called <i>vertebral arch</i>)	laminectomy	Removal of lamina to relieve compression on spinal cord
-malacia	softening	osteomalacia	Softening of bone
-porosis	porous; containing pores	osteoporosis	Increased porosity of bone (results in a loss of density and weakening of the bone)
-penia	deficiency	osteopenia	Deficiency or decrease in bone density

Musculoskeletal Disorders

Some of the more common musculoskeletal diseases that result in hospital admissions and are coded with ICD-9-CM include arthritic disorders, chronic joint derangements, pathologic bone fractures, osteomyelitis, necrotizing fasciitis, costochondritis, and back and spine disorders.

Arthritic Disorders

Arthritis is inflammation of the joints. Some common types of arthritis that give rise to inpatient admissions include osteoarthritis (OA), rheumatoid arthritis, and gouty arthritis. Symptoms associated with these common forms of arthritis include joint pain, swelling, and stiffening.

Osteoarthritis

OA (715.0–9X), also called *degenerative joint disease*, causes a loss of joint cartilage with a subsequent thickening (hypertrophy) of bones of the affected joint and results in severe joint pain and swelling (Figure 11.1). Joint cartilage, also called articular cartilage, acts as a cushion where two bones come together, or articulate, at a joint structure (union of two bones).

OA can be classified as *primary* (not caused by injury) or *secondary* (caused by injury or another disease process). Primary OA results from stress on joints

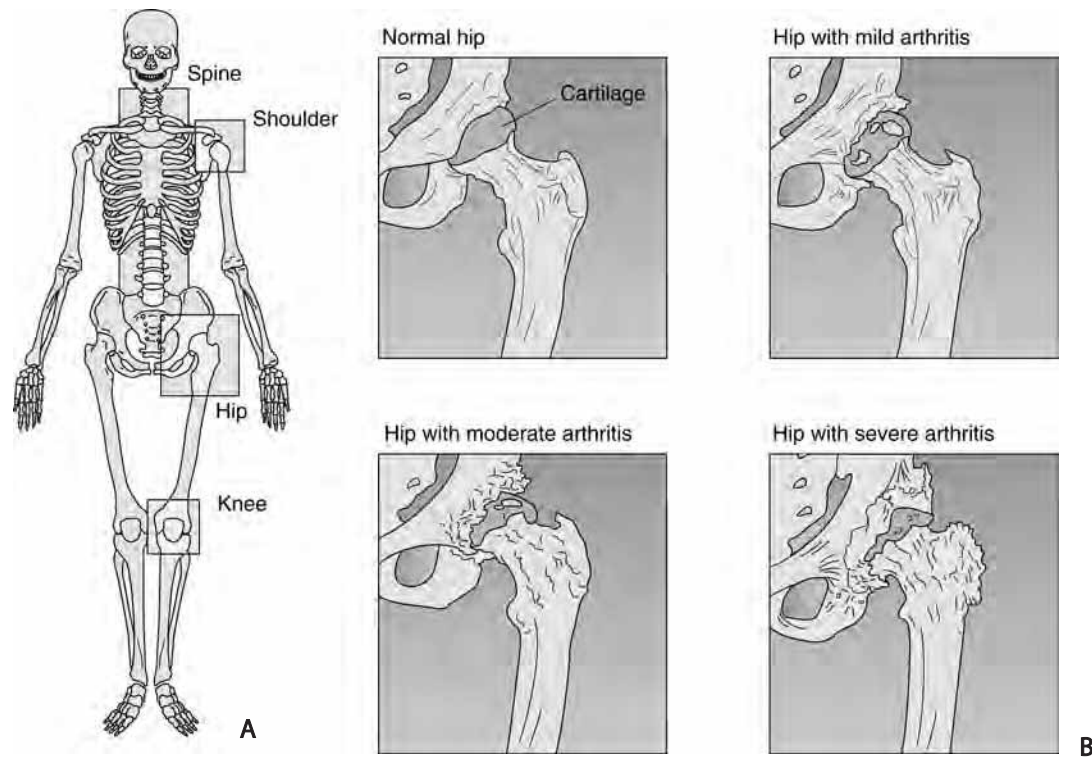


Figure 11.1 Osteoarthritis. **A.** Common sites of osteoarthritis. **B.** How osteoarthritis affects the hip. (Reprinted with permission from Willis MC. *Medical Terminology: A Programmed Learning Approach to the Language of Health Care*. Baltimore: Lippincott Williams & Wilkins, 2002.)

over time (wear and tear of joints that occurs with age), and it can affect one joint (localized) or many joints (generalized). Primary OA commonly occurs in the knees, hips, lower vertebrae (spine), and finger joints of elderly people. Secondary OA usually results from an injury or trauma to a joint and is typically localized (i.e., it affects one or few joints). The fourth digit for OA disorders depends on the physician's documentation of the specific type (i.e., primary, secondary, generalized, or localized). However, physician documentation may be nonspecific, and the fourth digit of 9 (OA, not otherwise specified regarding type) is often assigned. It is important for you to recognize that the fifth digit assignment adds detail by specifying the specific joint affected (e.g., hip, knee, or shoulder).

Osteoarthritis, left hip: 715.95

Osteoarthritis, generalized: 715.00

Secondary osteoarthritis, right knee, attributable to old football tackle sprain injury: 715.26 + 905.7 + E929.3

Primary osteoarthritis of both knees: 715.16

Example

Medical treatments (conservative and nonsurgical) for OA include the use of nonsteroidal anti-inflammatory drugs (NSAIDs), analgesics to reduce associated joint pain (e.g., aspirin), exercise, and physical therapy. However, OA may also require joint-replacement surgery, which necessitates an inpatient admission.

Joint replacement for the hips, knees, and shoulders can be total or partial. These are freely moving synovial “ball and socket” and “hinge” type joints. Freely moving synovial joints have a joint capsule, articular cartilage where bones join together, and a synovial membrane and cavity that contain a lubricating synovial fluid to reduce friction within the joint. Freely moving joints are often affected by increased wear over time, and joint-replacement surgery is often indicated. In total hip replacement surgery (code 81.51), both the femoral head (ball of the long bone in the thigh) and the acetabular cup (the hollow or socket within the pelvis) are replaced. The commonly performed bipolar endoprosthesis (code 81.52; e.g., Austin-Moore hemiarthroplasty) is a partial hip replacement. You should be aware that hip-replacement surgery often involves a significant amount of blood loss that is replaced by transfusion. If the physician documents postoperative blood loss anemia, code it to 285.1 (acute posthemorrhagic anemia). Do not code it as a complication of surgery.

Starting October 1, 2005, new codes were added to provide more detail to hip and knee replacement and revision surgery. For **total hip replacement** (81.51) or **partial hip replacement** surgery (81.52), an additional code 00.74-00.76 can be used to specify the type of bearing surface, if known (e.g.- total hip replacement with bearing surface type, metal on polyethylene = 81.51 + 00.74). Rather than coding **hip revision, not otherwise specified** (NOS) (81.53) and **knee revision, not otherwise specified** (NOS) (81.55) surgery, codes have been added to describe the precise component revised, if known. Codes 00.70-00.73 describe the component of the hip being revised (e.g.- acetabular, femoral, or both), and codes 00.80-00.84 describe the component of the knee being revised (e.g.- femoral, tibial, patellar, or all), which would be used in place of the NOS code. For hip replacements or revisions, an additional code is used to specify the type of bearing surface, if known (00.74-00.76). Also, for both hip and knee revisions, there is an additional code that can be used for the removal of a joint (cement) spacer (84.57).

Example

Primary osteoarthritis of hip with Austin-Moore endoprosthesis placement; postoperative (blood loss) anemia: 715.15 + 285.1 + 81.52

Degenerative joint disease of both knees with bilateral total knee replacement: 715.96 + 81.54 + 81.54

Status post hip replacement with recurrent hip dislocation admitted for total hip-replacement revision: 996.42 + 00.70

Osteoarthritis of shoulder with total shoulder replacement: 715.91 + 81.80

Post-traumatic osteoarthritis, left femoral head in 20 y.o. admitted for left femoral head resurfacing: 715.25 + 908.6 + 00.86



There is no single combination code in the ICD-9-CM to express bilateral joint-replacement surgery. Therefore, you must code the joint-replacement procedure twice for bilateral joint replacements (e.g., bilateral knee replacement: 81.54 + 81.54). This can have a profound effect on the reimbursement and case-mix reporting for the hospital (see MS-DRG 470 versus MS-DRG 462 reporting). Remember that MS-DRGs use the ICD-9-CM classification system to describe the type of patients a hospital treats (case mix). MS-DRGs were developed by the Federal government to categorize patients into clinically similar groups that use similar resources. Through MS-DRGs, the federal government can establish prospective payment rates to hospitals for inpatient services on the basis of the patient's diagnosis. Thus, MS-DRGs are an inpatient prospective payment system.

MS-DRG 470: Major joint and limb reattachment procedures of lower extremity w/o MCC

MDC: 008 Diseases and disorders of the musculoskeletal system and connective tissue

CMS wt.: 1.9871

A/LOS: 4.0

G/LOS: 3.7

Principal diagnosis: 715.96 Osteoarthritis, lower leg

Principal procedure: 81.54 Total knee replacement

Medicare inpatient reimbursement: \$7,948.40

MS-DRG 462: Bilateral or multiple major joint procedures of the lower extremity w/o MCC

MDC: 008 Diseases and disorders of the musculoskeletal system and connective tissue

CMS wt.: 3.0993

A/LOS: 4.1

G/LOS: 3.9

Principal diagnosis: 715.96 Osteoarthritis, lower leg

Principal procedure: 81.54 Total knee replacement

Other procedures: 81.54 Total knee replacement

Medicare inpatient reimbursement: \$12,397.20

Example

Rheumatoid Arthritis

Rheumatoid arthritis (714.0) is an autoimmune disease in which a person produces abnormal antibodies that attack his or her own normal joint tissues and structures. This produces joint swelling, joint pain, fever, and joint deformity. Rheumatoid arthritis is a progressive disease that affects the smaller joints of the hands and feet, as well as larger joints. Treatment includes the use of anti-inflammatory drugs such as steroids or NSAIDs, gold compounds, analgesics to reduce pain, physical therapy, and joint-replacement surgery.

Gouty arthritis

Gouty arthritis (274.0) produces excessive uric acid-containing salt crystals that damage the (articular) cartilage of the joint and cause inflammation. Podagra (painful big toe) is a classic symptom associated with gout; however, many joints can be affected. Treatment consists of drugs to reduce hyperuricemia (excess uric acid in the blood), such as allopurinol or colchicine; NSAIDs; and a diet that restricts consumption of foods high in uric acid (e.g., red meat, cheese, and alcohol).

Chronic Versus Traumatic Joint Derangements

Joint derangements coded from chapter 13 of the ICD-9-CM on the musculoskeletal system and connective tissue represent chronic or old injuries and are coded to category 717.0–717.9. You should not confuse chronic (recurrent or old) joint derangements (category 717.0–717.9) with acute traumatic (current or new) joint derangements coded to category 836.0–836.6X (from chapter 17 of the ICD-9-CM on injury and poisoning).

For precise coding of a joint derangement, first determine whether the injury is chronic (recurrent or old) or acute traumatic (current or new). For example, if a person fell while ice-skating 10 years ago and has had problems

with knee derangement since then, the injury would be considered chronic or old (codes 717.0–717.9). However, if a person was playing football today and received a sudden, traumatic derangement injury to the knee, the injury would be considered acute and current (codes 836.0–836.6X).

TIP

To avoid mistakenly coding an old derangement of the knee to a current injury, remember that current injury codes are easy to recognize (i.e. have an 800–999 appearance). Double-check for coding accuracy on the basis of the history of the present illness in the patient's history and physical report to distinguish chronic old injuries from current traumatic injuries.

Example

Chronic anterior cruciate ligament tear/derangement, right knee, from old twisting injury while playing soccer in high school: 717.83 + 905.7 + E929.8

Acute anterior cruciate ligament tear/derangement, right knee, from twisting injury while playing soccer earlier this afternoon: 844.2 + E927

Pathologic Versus Traumatic Bone Fractures

There are critical differences between pathologic fractures and traumatic fractures of bone. Pathologic (spontaneous) fractures are classified in the musculoskeletal and connective tissue chapter of ICD-9-CM (section 710 to 739), and traumatic fractures are classified in the injury and poisoning chapter of ICD-9-CM (section 800 to 999). Unlike traumatic fractures, which are caused by an external injury, pathologic fractures occur spontaneously in bones that are weakened by diseases such as osteoporosis, osteomalacia, osteopenia, aseptic necrosis, and bone cancer. In other words, pathologic fractures are secondary to a diseased or weakened bone and are not attributable to an external injury or trauma. Common sites for pathologic fractures are the vertebrae (back bones and spinal column) and hip (i.e., femoral head or neck).

A leading cause of pathologic fractures is osteoporosis (733.0X), which causes bones to become porous, lose density (mass), and become weak. Pathologic fractures of the spine (733.1X) are common causes of inpatient admissions in elderly women. These fractures tend to occur in the lumbar (weight-bearing) region of the spine as a result of postmenopausal osteoporosis (733.01). Postmenopausal osteoporosis occurs when a loss of estrogen weakens bones, especially of the spine. This condition can lead to pathologic vertebral compression fractures, sometimes referred to as *spontaneous fractures*.

If a patient admission is the result of a pathologic fracture attributable to osteoporosis, assign the pathologic fracture code as the principal diagnosis, because that was the chief reason for admission; sequence the osteoporosis code as a secondary diagnosis. Coders can mistakenly code pathologic fractures to traumatic fractures when the physician has not provided sufficient documentation of osteoporosis.



Spontaneous pathologic fractures are often associated with a fall; this could mistakenly lead you to believe that it is a traumatic fracture. However, if the patient's history indicates weakened bones attributable to osteoporosis or another weakened bone state and if the fall or injury is minor or does not seem significant enough to cause a healthy bone to fracture, query the physician to determine whether the fracture was attributable to trauma or pathologic disease. As a final check, review your final code selection to ensure that what was intended to be reported as a pathologic fracture (code 733.1X) has not been mistakenly coded as a traumatic fracture (codes 800–829).

An elderly woman slipped from wheelchair to floor with minor trauma. However, the patient did sustain a femoral neck fracture. The patient has a history of severe osteoporosis, and the physician has classified the fracture as pathologic: 733.14 + 733.00.

Example

An elderly woman slipped on ice on the front porch and fell down three stairs, landing hard on her right hip. The fall resulted in right femoral neck fracture: 820.8 + E880.9.

Osteomyelitis

Osteomyelitis (730.XX) is bone and bone marrow inflammation caused by a bacterial infection. It commonly occurs in the extremities (legs and arms) and is caused by bacteria that enter through an open wound or fracture. If the responsible bacterial organism is known, assign an additional code. Treatments include the administration of intravenous antibiotics, incision and drainage of any abscess, excisional debridement of the bone and surrounding tissues, and, in some cases, amputation of the affected limb.

Osteomyelitis, right great toe, with skin ulcer. The patient underwent debridement of the ulcers down to and including the bone: 730.27 + 707.15 + 77.69 (code debridement to the deepest layer of the same site only).

Example

Necrotizing Fasciitis

Necrotizing fasciitis (728.86) is a severe infection of the fascia (fibrous membrane that surrounds muscle) and subcutaneous tissues. When coding necrotizing fasciitis, assign additional codes to convey the presence of gangrene (785.4) or any responsible bacterial organism (see category 041).

Necrotizing fasciitis, right thigh, with gangrene. Culture grew staphylococci: 728.86 + 785.4 + 041.10.

Example

Costochondritis

Costochondritis (733.6) is an inflammation of the costochondral junction between the sternum (breastbone) and the ribs that can sometimes result from an injury or strain to the chest muscles. The etiology can also be unknown. Symptoms include a sharp anterior wall chest pain that can sometimes be similarly described in patients with coronary artery disease. This confusion of the symptoms of costochondritis with those of heart disease can sometimes result in patient admission. However, diagnostic studies such as chest radiograph, electrocardiogram, and blood chemistry (e.g., troponin and creatine kinase-myocardial band are laboratory tests that can identify myocardial damage) typically rule out the possibility of serious cardiac disorders in these cases. Costochondritis is a self-limiting condition. Medical treatment includes NSAIDs, and the pain usually resolves within a short time.

Back and Spine Disorders

Back pain not otherwise specified is coded to 724.5, and low back pain is coded to 724.2. These conditions, although nonspecific, can cause severe pain, which can sometimes result in an inpatient admission and be sequenced as the principal diagnosis. However, after study, a more definitive diagnosis is usu-

ally listed as the principal diagnosis (e.g., low back pain attributable to a slipped lumbar disk: 722.10). More often, back pain not otherwise specified or low back pain may not be the principal reason a person was admitted to the hospital but is sequenced as a secondary diagnosis if its occurrence affects a patient's course of care.

Figure 11.2 illustrates the vertebral column. Some spinal (vertebral) disorders commonly result in inpatient admissions for treatment, such as for displacement of an intervertebral disk—also referred to as a *herniated disk*, *slipped disk*, *ruptured disk*, or *herniated nucleus pulposus* (Figure 11.3). Between the bones of the spine (vertebrae) are disks of cartilage that cushion the vertebrae. These intervertebral disks consist of an outer annulus and inner nucleus pulposus. Sometimes degenerative changes or physical stress can cause these cartilaginous disks to slip (i.e., the nucleus ruptures or herniates), which can then put pressure on the root nerves of the spinal cord. This pressure can result in symptoms including severe back pain, causalgia (burning pain usually associated with damage to the nerves), sciatica (pain traveling down a leg), and radiculitis (pain from inflammation of the spinal nerve roots).

Disk herniation often leads to a hospital admission for definitive (corrective) surgical intervention. This may include a (decompression) laminectomy

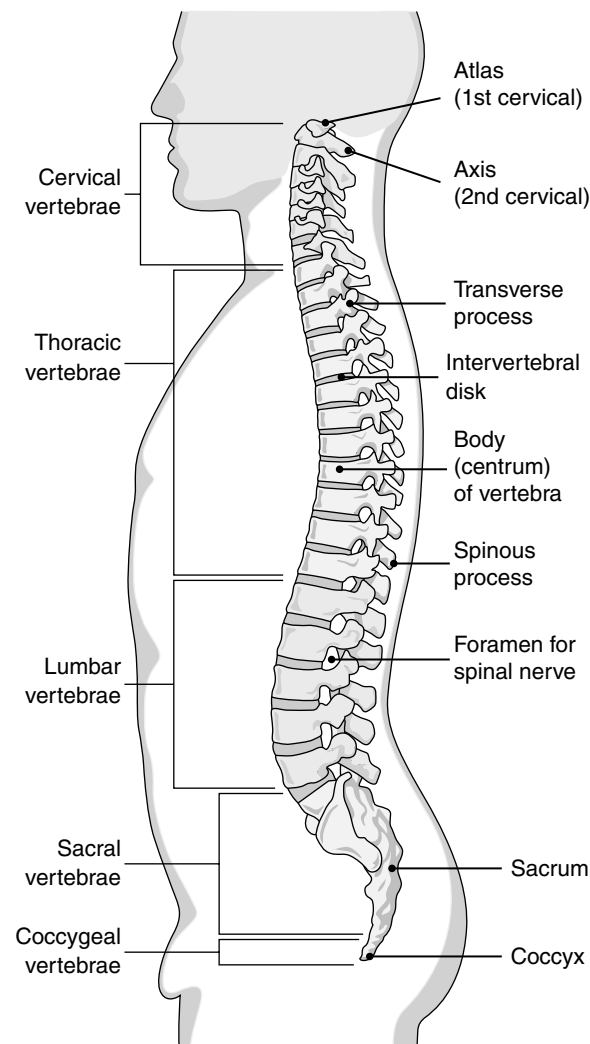


Figure 11.2 Vertebral column from the side. (Reprinted with permission from Cohen BJ and Wood DL. Memmler's The Human Body in Health and Disease, 9th Ed. Philadelphia: Lippincott Williams & Wilkins, 2000.)

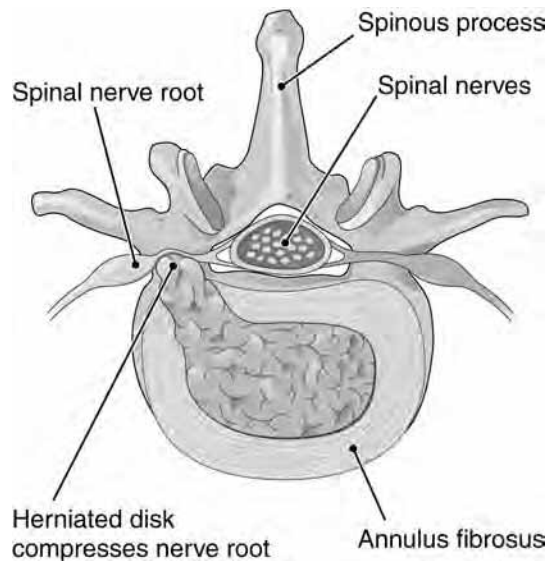


Figure 11.3 Herniated Disk. (Reprinted with permission from Cohen BJ. *Medical Terminology: An Illustrated Guide*, 4th Ed. Baltimore: Lippincott Williams & Wilkins, 2004.)

(03.09) in which a portion of a vertebral bone (the vertebral arch) is removed to relieve compression on the nerves of the spinal cord. If a laminectomy is performed with discectomy (removal of the intervertebral disk), the laminectomy is considered an operative approach, and you code only the discectomy (80.51). This may be followed by a spinal fusion procedure (81.0X), in which adjacent vertebrae may be surgically immobilized (fused) together. If a spinal fusion occurs, an additional code is assigned to indicate the number of vertebrae fused (e.g., fusion of two to three vertebrae: 81.62).

Other less invasive procedures to surgically repair a herniated disk include a percutaneous discectomy (80.59), which removes the disk by aspirating it through a tube inserted through the skin, and chemonucleolysis (80.52), in which a surgeon injects an enzyme that dissolves the herniated portion of the intervertebral disk.

Diagnosis: *Sciatica attributable to herniated L2-3 lumbar disk*

Procedures: *Laminectomy with L2-3 discectomy and spinal fusion; posterior technique with iliac crest bone graft: 722.10 + 80.51 + 81.08 + 77.79 + 81.62*

Example

Another common back and spine disorder is spondylosis (degenerative joint disease of the spine), which is the result of a degeneration of the intervertebral disks of the spine. Spondylosis, as well as herniation of intervertebral disks of the cervical, thoracic, or lumbar spine, can occur with or without myelopathy. Documentation of “myelopathy” by the physician, which describes a functional impairment of the spinal cord, changes the fourth-digit subcategory for these conditions.

Connective Tissue Diseases

The most common connective tissue diseases that result in hospital admissions and are coded with ICD-9-CM include systemic lupus erythematosus and systemic scleroderma.

Systemic Lupus Erythematosus

Systemic lupus erythematosus (710.0) is a crippling disease that can affect the joint structures in the musculoskeletal system and many other organs, such as the skin, heart, lungs, and kidneys. It is believed to be an autoimmune disorder in which abnormal antibodies attack normal connective tissue throughout the body.

Symptoms commonly associated with systematic lupus erythematosus include joint pain, fever, and skin rash. Treatment includes steroids to reduce inflammation and resulting tissue damage, immunosuppressive drugs, and physical therapy.

ICD-9-CM uses a mandatory dual-coding mechanism that requires you to assign an additional code to identify any secondary manifestation(s) of the disease.

Example *Chronic nephritis secondary to systematic lupus erythematosus: 710.0 + 582.81*

Systemic Sclerosis

Systemic sclerosis, or scleroderma (710.1), results in the hardening and shrinking of connective tissue which can progress throughout the body. It can affect the skin, heart, lungs, kidneys, and esophagus. The etiology of this disease is unknown. Treatment can include steroids to reduce inflammation, immunosuppressive drugs, and physical therapy. Often, patients with systemic sclerosis have a resultant esophageal disorder (hardening of esophageal tissues) that requires hyperalimentation (tube feeding) or parenteral (intravenous) feeding.

Summary

This chapter has addressed musculoskeletal system and connective tissue diseases. Common conditions affecting the musculoskeletal system and connective tissue have been described. Proper coding of the procedures used to treat these conditions has been presented and discussed, and this has been extended to include the assignment of correct codes from medical reports and records. Also emphasized in this chapter is the application of this new knowledge to assign a correct DRG. Chapter 12 will deal with diseases of the nervous system and sense organs.

Testing Your Comprehension

1. What is another name for osteoarthritis?
2. Which digit specifies the affected joint for osteoarthritis?
3. In extremely severe cases of osteoarthritis, what type of surgical intervention may be required?
4. If a bilateral joint replacement procedure is undertaken, how will that affect the coder's responsibilities?
5. Hip-replacement surgery often is accompanied by a significant amount of blood loss. Should this be coded as a complication of surgery?

6. Identify the common treatment protocols for rheumatoid arthritis.
7. Identify a classic symptom of gout.
8. What is the first step in ensuring proper coding of joint derangement?
9. What is a common cause of a traumatic fracture?
10. What is a common cause of a pathologic (spontaneous) fracture?
11. What are the most common sites for a pathologic fracture?
12. Identify the treatment regimens that may be considered for osteomyelitis.
13. What is the diagnostic term for a severe infection of the fibrous membrane surrounding muscle?
14. Identify a common cause of costochondritis.
15. What is a common result of disk herniation?
16. What are the most common connective tissue diseases that result in hospital admissions?
17. What symptoms are commonly associated with systemic lupus erythematosus?
18. What are the common treatment regimens for systemic sclerosis or scleroderma?
19. What is a diagnosis for a hardening and shrinkage of connective tissue?

Chapter Review Exercises

Coding Practice I

Directions

By using your ICD-9-CM codebook, code the following diagnoses and procedures:

	Diagnosis/Procedures	Code
1	Osteoarthritis, left hip. Postoperative anemia due to blood loss. Bipolar endoprosthesis, femoral head.	
2	Nonunion, fibular fracture. Open reduction, internal fixation, fibular fracture.	
3	Sciatica attributable to herniated L4-5 disk. Decompressive laminectomy, L4-5.	
4	Nontraumatic compression fracture, L4. Spondylosis, lumbar.	
5	Encephalitis secondary to systemic lupus erythematosus.	
6	Necrotizing fasciitis, right thigh. Right thigh fasciectomy.	
7	Degenerative rotator cuff tear. Rotator cuff repair.	
8	Anterior cruciate ligament tear, chronic. Repair anterior cruciate ligament.	
9	Septic arthritis, right shoulder. Intravenous antibiotics.	
10	Chest wall pain secondary to costochondritis.	
11	Aseptic necrosis, right hip. Total hip replacement, right. Bearing surface, metal on polyethylene.	

	Diagnosis/Procedures	Code
12	Acute osteomyelitis, right great toe, secondary to insulin-dependent (type 1) diabetes mellitus. Amputation, right great toe.	
13	Spinal stenosis, L3-4. L3-4 discectomy with spinal fusion using an iliac crest donor graft.	
14	Calcinosis cutis, Raynaud phenomenon, sclerodactyly, and telangiectasia syndrome. Esophageal dyskinesia. PEG.	
15	Left knee joint effusion. Arthrocentesis, left knee.	
16	Rheumatoid arthritis with deformity, right thumb. IP joint arthroplasty with prosthetic implant, right thumb.	
17	Bone spur, left calcaneus. Excision, bone spur, left heel.	
18	Lower back pain and radiculitis attributable to herniated lumbar disk with myelopathy. L2-3 laminectomy with discectomy.	
19	Degenerative disk disease, thoracic spine.	
20	Pathologic fractures, T11 and T12. Postmenopausal osteoporosis.	

Medical Record Case Studies

Coding Practice II

Instructions

1. Carefully review the medical reports provided for each case study.
2. Research any abbreviations and terms that are unfamiliar or unclear.
3. Identify as many diagnoses and procedures as possible.
4. Because only part of the patient's total record is available, determine what additional documentation you might need.
5. If appropriate, identify any questions you might ask the physician to code this case correctly and completely.
6. Complete the appropriate blanks below for each case study.

Chapter 11 Case Studies

Case Study 11.1

Patient: **Jane Doe**

Patient documentation: **Review Medical Reports 11.1, 11.2, and 11.3**

Principal diagnosis: _____

Secondary or other diagnoses: _____

Principal procedure: _____

Other procedures: _____

Additional documentation needed: _____

Questions for the physician: _____

Medical Report 11.1

XYZ Memorial Hospital
DISCHARGE SUMMARY

Patient: Jane Doe
Medical Record #:
Attn Physician: Smith, M.D.

FINAL DIAGNOSES:

1. Compression fractures of T11-T12, L1-L2 secondary to osteoporosis.
2. Hypertension.
3. Renal insufficiency, acute.
4. Anemia.
5. Osteoarthritis.
6. Hiatal hernia.
7. Please look at list of problems with history and physical.

CONSULTATIONS: Orthopedic consult.

PROCEDURES: None.

PERTINENT PATIENT ASSESSMENT INFORMATION/ PHYSICAL EXAM: Please see Admission History and Physical.

HOSPITAL COURSE AND LABORATORY DATA: Ms. Doe is an 87-year-old, white female who presented with severe low back pain. The patient was found to have compression fracture. The patient was treated conservatively. There was no neuro deficit. The patient was seen by Orthopedics. The patient was also found to have renal insufficiency. The patient was given Normal Saline, her creatinine was trending down. In the last couple of days of hospitalization, the patient refused lab work which made it difficult to further evaluate her renal function. The patient was discharged to the nursing home.

DISCHARGE CONDITION:

DISPOSITION: ABC Manor.

DIET: Continue current.

ACTIVITIES: As tolerated.

FOLLOW-UP APPOINTMENT: With me in one week.

DISCHARGE MEDICATIONS: Please see list of discharge medications.

FAMILY INVOLVEMENT: Involved.

CONTROL OF CARE: Patient and family. The nursing home was instructed to d/c Celebrex, HCTZ, Toradol because they can be contributing to her renal insufficiency.

WOUND CARE: N/A

PAIN MANAGEMENT: As outlined.

D:
T:

Smith, M.D.

Medical Report 11.2**XYZ Memorial Hospital**
HISTORY AND PHYSICAL

Patient: Jane Doe

Medical Record #:

Attn Physician: Dr. Smith, M.D.

IDENTIFICATION, CHIEF COMPLAINT AND PRESENT ILLNESS: Ms. Doe is an 87-year-old white female who presented to the Emergency Room with severe low back pain. Patient was seen and evaluated. She was found to have compression fracture of T11, T12, L1, and L2. Patient has history of severe osteoporosis. Patient was also found to have renal insufficiency. Patient was admitted to the hospital for further evaluation.

Patient denies any chest pain, palpitations, pedal edema, orthopnea, PND, dyspnea on exertion, cough, wheezing, pleuritic chest pain, syncope or hemoptysis. Patient denies any nausea, vomiting, abdominal pain, diarrhea, constipation, heartburn or epigastric pain. Patient denies any hematemesis, coffee ground emesis, melena or bright red blood per rectum. Patient has no dysuria, frequency, urgency, hematuria or polyuria. Patient has no diplopia or visual field cuts, facial weakness, facial droop, dysarthria, dysphagia, no focal weakness, altered level of consciousness, neck stiffness, urinary incontinence, or fecal incontinence. Patient has no fever or chills. Patient has no other symptoms or complaints at the present time.

PAST HISTORY:

1. Osteoporosis
2. Osteoarthritis
3. Hiatal Hernia
4. GERD
5. HTN

****** ALLERGIC TO MINIPRESS ******

HOME MEDICATIONS: Please look at list of home medications.

SOCIAL HISTORY: Patient is a widow; denies any tobacco, alcohol or illicit drugs.

FAMILY HISTORY: Positive for HTN.

REVIEW OF SYSTEMS: Otherwise unremarkable.

PHYSICAL EXAMINATION: Well developed white female in no acute distress.

VITAL SIGNS: Afebrile, BP 151/69; Pulse 70; RR 20.

SKIN: No new lesions.

HEENT: Pupils are equal, reactive to direct and consensual light.

NECK: Supple.

Continued

Medical Report 11.2 continued

LUNGS: Clear to auscultation.

HEART: Regular rhythm; no S3 or murmur.

ABDOMEN: Bowel sounds present; soft; non tender.

KUB: Costovertebral angle tenderness is negative bilaterally.

EXTREMITIES: Pulses are adequate; no edema, clubbing, or cyanosis.

NEUROLOGIC: Alert and oriented x3; no apparent focal deficit.

LAB DATA: Reviewed.

ASSESSMENT & PLAN OF TREATMENT:

1. Low back pain secondary to compression fracture of T11, T12, L1, and L2. No neuro deficit at the present time. Will consult Orthopedics. Treatment will be conservative.
2. Renal insufficiency, most likely secondary to prerenal azotemia. Will hold on HCTZ at the present time and re-evaluate.
3. HTN: continue current anti-hypertensive medications.
4. Hiatal hernia.
5. Osteoporosis: continue current treatment.
6. Osteoarthritis: continue Celebrex 200 mgs PO every day.
7. Anemia: anemia work-up will be done as an out-patient.

PROGNOSIS: Guarded.

LEVEL OF CARE NEEDED: Four.

ADVANCE DIRECTIVE: Has not been executed.

D:

T:

Smith, M.D.

Medical Report 11.3**XYZ Memorial Hospital**
CONSULTATION

Patient: Jane Doe

Medical Record #:

Attn Physician: Dr. Smith, M.D.

Consulting Physician: Dr. Jones, M.D.

DIAGNOSIS:

1. L1 and L2 vertebral body compression fractures, age indeterminate.
2. Question of a sacral fracture, volar surface, minimal angulation, nondisplaced.

HISTORY: The patient is an 87-year-old, white female who previously worked as an instructor. She doesn't look her stated age. She gives a history of having had progressive problems with back pain which has been of recent onset. She has had no antecedent trauma.

PAST MEDICAL HISTORY: This patient had a stroke that has left her with right hemiplegia. She walks with a walker. She is able to ambulate up and down 5 flights of steps at her home.

PHYSICAL EXAMINATION: Shows an alert, oriented, white female who does not appear to be her stated age. Examination of both feet demonstrate that she has deep tendon reflexes in the ankles that were symmetrical and equal. She has normal sensation in her lower extremities. Internal and external rotation of the hips does not cause pain in her back. The patient is resting comfortably in bed.

IMPRESSION/PLAN: I have reviewed the x-rays and the CT reconstructions of her lumbar spine. She has severe degenerative changes with osteopenia, vertebral body compression fractures of L1 and L2, age indeterminate. The patient has a possible fracture of the sacrum on the volar surface of the S2 level. It is angulated, but not displaced.

I would opt for conservative modalities. I will speak with Dr. Smith about fitting this lady with an extension brace or a lumbosacral corset for comfort purposes. I think she should be out of bed and mobilized as quickly as possible. Surgery is not indicated. She is neurologically intact. Her primary problem is that she has osteopenia from old age and has had vertebral body compression fractures.

If I can be of further assistance, please feel free to call me; I will follow the patient with you.

D:

T:

Dr. Jones, M.D.

Case Study 11.2

Patient: **Anne Brown**

Patient documentation: **Review Medical Report 11.4**

Principal diagnosis: _____

Secondary or other diagnoses: _____

Principal procedure: _____

Other procedures: _____

Additional documentation needed: _____

Questions for the physician: _____

Medical Report 11.4

XYZ Memorial Hospital
REPORT OF OPERATION

PT NAME: Anne Brown
MED REC NO:
ATTN MD: Smith

DATE OR OPERATION:

SURGEON: SMITH

ANESTHESIOLOGIST:

PRE-OP DIAGNOSIS: Osteoarthritis, right knee, with associated valgus deformity.

POST-OP DIAGNOSIS: Same.

ANESTHESIA: Spinal.

PROCEDURE: Right total knee replacement.

ESTIMATED BLOOD LOSS: Less than 20 cc.

DRAINS: OrthoPak to autotransfusion unit.

COMPLICATIONS: None.

DESCRIPTION OF PROCEDURE: The patient was taken to the operating room, placed in the right lateral decubitus position, left hip up. Spinal anesthetic was initiated. The patient was then placed in the supine position. Right lower extremity was then prepped and draped in the usual sterile fashion. Using a #10 blade, a 16-cm midline incision was made. Using a combination of sharp and blunt dissection technique, the subcutaneous tissue was incised and explored. The medial and lateral full thickness flaps were elevated and reflected in a medial and lateral direction.

A second #10 blade was used to make a medial parapatellar incision, retinaculum incised. The patella was then flipped. The patient was noted to have marked degenerative arthritis, particularly of the lateral compartment of the knee. The patient was noted to have osteophytic spurring. Using the Zimmer step drill, an intermedullary guide hole was drilled. The patient was sized to a size E femoral component. After sizing, the patient intermedullary guide was placed and the cutting jig was placed and the femoral cuts were made, according to the Zimmer cutting jig.

The patella recess was then cut and peg holes for the femoral components were drilled. A size E femoral component was then tried and this was found to be acceptable. Having completed the cutting of the femoral component, the medial and lateral compartments were debrided of residual meniscal tissue. A standard step drill was then used to drill the intermedullary hole for the femur. 10 mm of proximal tibial surface was resected using the medial compartment as a reference. The patient was then sized to a #5 tray. The thinned guides were drilled and the patient was tried. It was found that the patient would accept a 10-mm insert. The patient was stable in all planes of motion.

Continued

Medical Report 11.4 continued

The patient was demonstrated at this point to be ready to perform a lateral retinacular release. The patient's patella was resected of a mm of bone and the 35-mm patella resection component was tried. A lateral retinacular release was completed and the patient's patella was noted to track well. The patient's wound was irrigated copiously with normal saline. The tibial component and patellar components were cemented. The femoral component was press-fit. The patient's knee was reduced. The medial retinacular incision was repaired using interrupted sutures of #1 Ethibond. Subcutaneous tissue was approximated with staples. A large-bore drain was placed in the substance of the wound prior to wound closure. The drain was connected to the OrthoPak autotransfusion unit. The patient was dressed and she was transferred to the recovery room in stable and satisfactory condition.

D:

T:

Dr. Smith

NOTES

Patient: **Mike Thompson**

Patient documentation: **Review Medical Reports 11.5 and 11.6**

Principal diagnosis: _____

Secondary or other diagnoses: _____

Principal procedure: _____

Other procedures: _____

Additional documentation needed: _____

Questions for the physician: _____

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Medical Report 11.5

XYZ Memorial Hospital
DISCHARGE SUMMARY

Patient: Mike Thompson
Medical Record #:
Attn Physician: Smith, M.D.

FINAL DIAGNOSES:

1. Rheumatoid arthritis flare and exacerbation.
2. Delirium, probably secondary to corticosteroids.
3. Dementia, senile.

HOSPITAL: The patient was discharged to SNU. The patient was admitted for IV fluids at 75 an hour. Sed. Rate, CH50, C3 and C4 obtained. Bone scan to rule out occult fracture was ordered. The patient was typed and screened two units of packed cells. CBC, iron and retic and Ferritin ordered. This was for anemia of chronic disease. The patient was started on IV Rocephin for possible CNS infection also given his febrile illness. Regular diet was initiated. The history and physical dictated. The patient ambulated. Rocephin was decreased to 1 gram q 24 hours. Percocet was given 1 to 2 tabs q. 4 hours p.r.n. pain. OxyContin initiated 10 mgs twice daily. The patient had a serum H. pylori level and the results are pending at this time. This was to evaluate abdominal pain. The delirium persisted. This was thought to be due to corticoid steroids. This was being given for the patient's rheumatoid arthritis flare. He was given Haldol IV and Ativan IV. The Haldol was given routinely b.i.d. Posey vest was ordered temporarily to protect the patient from injury or pulling out the IVs. IV SoluMedrol was changed to p.o. 30 mgs daily. Zyprexa ordered, 5 mgs daily. Prednisone was ordered, 30 mgs daily. IV corticosteroids initiated. Ativan was given q. 8 hours, p.r.n. p.o. Valium was given IV x1. Haldol, as well. The patient was given influenza pneumococcal vaccine. Zyprexa was increased to 10 mgs daily. Prednisone was increased to 20 mgs daily. Plaquenil was ordered 20 mgs b.i.d. The patient's Zyprexa was increased to 10 mgs q.h.s. Given that the family is unable to care for him for his current debilitated condition, he was placed in a skilled care facility. Medications were given to resolve his dementia that will probably persist.

DISCHARGED LABS: Serum iron of 13, TIBC 228, Saturation of 6 percent. Creatinine .8, BUN 15 and Sodium 140. Potassium 4.3, Chloride and Bicarb of 30, Calcium 8.3 and Albumin 2.8. Sed rate of 94. White count 20,000 and hemoglobin 9 and hematocrit of 28, platelet count 324. Cultures negative.

The patient will be seen by me on a monthly or p.r.n. basis.

D:
T:

Smith, M.D.

Medical Report 11.6**XYZ Memorial Hospital**
HISTORY AND PHYSICAL

Patient: Mike Thompson
Medical Record #:
Attn Physician: Smith, M.D.

HISTORY OF PRESENT ILLNESS: This is an elderly 76-year-old male with a chief complaint of malaise, weakness, and lethargy.

PAST MEDICAL HISTORY: Significant for rheumatoid arthritis, hypertension, esophagitis, pneumonia recently released from the hospital.

SOCIAL HISTORY: Recently widowed. No history of tobacco abuse. Several adult children.

REVIEW OF SYSTEMS: Negative for headaches. Positive for malaise. Negative for diplopia. Negative for nosebleed. Negative for tinnitus. Negative for dysphagia. Negative for abdominal pain. Negative for shortness of breath. Negative for chest pain or palpitation. Negative for intermittent claudication. Negative for bowel or bladder incontinence. Negative for thalassemias, hepatitis. Negative for hemolytic anemia.

MEDICATIONS: Prednisone 10 mg a day. Elavil 25 mg q.h.s. Percocet for pain p.r.n.

PHYSICAL: An elderly, frail, male who is lying in bed alert and oriented at the time of my examination.

HEENT: Normocephalic. Atraumatic. Pupils equal, round, and reactive to light. Dentition fair. Cushingoid face due to corticosteroids for which the patient is on long term.

NECK: Supple. Carotid upstroke brisk. No carotid bruits.

EXTREMITIES: DTRs equivocal.

Neuromuscular and neurosensory examination intact.

Skeletal exam revealed bony enlargement, ulna deviation, atrophic musculature, limited range of motion of neck all due to rheumatoid arthritis.

IMPRESSION AND PLAN: Malaise, weakness, lethargy, poor p.o. intake.

Will admit. Rule out dehydration. Continue corticosteroids for rheumatoid arthritis. Check sed rate. Check inflammation flare of rheumatoid arthritis.

D:
T:

Smith, M.D.

Patient: Susan Jones

Patient documentation: Review Medical Reports 11.7, 11.8, and 11.9

Principal diagnosis:

Secondary or other diagnoses:

Principal procedure:

Other procedures:

Additional documentation needed:

Questions for the physician:

Medical Report 11.7

XYZ Community Hospital
DISCHARGE SUMMARY

PT NAME: Susan Jones
MED REC NO:
ATTN PHYSICIAN: SMITH, M.D.
DATE OF ADMISSION:
DATE OF DISCHARGE:

DIAGNOSIS: Aseptic necrosis of the left hip.

Ms. Jones underwent a total hip replacement. Postoperatively, she had exceptional bleeding with acute blood loss postop anemia. It was discovered that she had taken an aspirin-containing medication preoperatively under the false impression that she was not taking aspirin. It was a brand name that she misunderstood. At any rate, after blood replacement and careful monitoring, she recovered nicely and then went on to have an uneventful recovery with ambulation. On discharge, she was sent home with a walker, instructed to see me in one week. She was given a commode seat and abduction pillow, regular diet. She was placed on no pain medication or aspirin. The wound was healing nicely. She had no other medical problems or complications. She was in good health postoperatively and no problems were noted at the time of discharge.

D:

T:

Smith, M.D.

NOTES

Medical Report 11.8

XYZ Community Hospital
HISTORY AND PHYSICAL

PT NAME: Susan Jones

MED REC NO:

ATTN PHYSICIAN: SMITH, M.D.

DATE OF ADMISSION:

This 72-year-old female is admitted for total left hip replacement. She has severe rheumatoid arthritis. She injured her hips in an automobile accident two years ago and the left hip has been progressively getting more painful. She has no known cardiopulmonary history or history of hypertension. Her only medication is Feldene.

Physical examination shows blood pressure 150/80, pulse 72 and regular, afebrile. Skin is without lesions. HEENT examination shows head without signs of trauma. Neck is supple. No pharyngeal lesions. No thyromegaly. Pupils equal and reactive to light and accommodation. Full extra-ocular movements. No scleral icterus. Chest is clear bilaterally. Breasts are without masses. Cardiac examination shows normal S1 and S2 without S3 or S4. Grade 1/6 early systolic murmur at the apex is noted bilaterally. No carotid bruits. Abdomen is soft and nontender without masses or organomegaly. Pelvic and rectal examinations deferred. Musculoskeletal examination shows deforming arthritic changes both hands, chronic arthritic mild changes in both knees, decreased range of motion of hip secondary to pain without pedal edema. Neurologically, the patient is alert and oriented x3 without focal deficits.

Electrocardiogram shows normal sinus rhythm without acute changes.

ASSESSMENT: Basically healthy 72-year-old female with the exception of severe rheumatoid arthritis, rule out aseptic necrosis, left hip.

PLAN OF CARE: Admit for total hip replacement on left.

D:

T:

Smith, M.D.

Medical Report 11.9

XYZ Community Hospital
OPERATIVE REPORT

PT NAME: Susan Jones
MED REC NO:
PREOPERATIVE DIAGNOSIS: Avascular necrosis of the left hip.
POSTOPERATIVE DIAGNOSIS: Same
OPERATION: Total hip replacement.
SURGEON: Smith, M.D.
ASSISTANT
ANESTHESIA:

PROCEDURE: Ms. Jones was placed on her side; left hip was prepped and draped in the usual fashion. A paralateral incision was made cutting the tensor fascia lata. External rotators were defined and detached. The capsule was excised. She had a fulminating synovitis which bled. All this was excised. Then I went anteriorly and incised the inferior capsule. The hip was dislocated. The head was quite distorted as one would expect from the advanced necrosis. The head and neck were amputated at its base. The acetabulum was reamed with a truncated reamer down to 50 mm. We then made our appropriate slot and drove the 50 mm porous coated cup. It went in solidly. Next, we went to the femoral shaft, reamed out a canal. She bled profusely from the canal. Used a standard head. The hip was quite stable in all directions.

The wound was closed in layers over a Hemovac drain. Blood loss was about 800 ccs.

She left the operating room in excellent condition with an abduction pillow.

D:
T:

Smith, M.D.

NOTES

Case Study 11.5

Patient: **Joe Brown**

Patient documentation: **Review Medical Report 11.10**

Principal diagnosis: _____

Secondary or other diagnoses: _____

Principal procedure: _____

Other procedures: _____

Additional documentation needed: _____

Questions for the physician: _____

Medical Report 11.10**XYZ Community Hospital**
DISCHARGE SUMMARY

PT NAME: Joe Brown

MED REC NO:

ATTN PHYSICIAN: SMITH, M.D.

DATE OF ADMISSION:

CHIEF COMPLAINT: Weakness and atrophy, right leg.

HISTORY: This is a 40-year-old male with a six-week history of progressive weakness and atrophy in the right leg. A CT scan of the lumbosacral spine recently performed demonstrated a disk herniation probably at two levels and some anatomical abnormality of the spine itself. Nerve conduction studies showed multiple level involvement from L3 to L5. The patient was admitted and neurosurgical consultation was requested. His past history showed that the patient had been markedly overweight and hypertensive and had lost about 150 lbs. three years ago. Since that time, he has been in relatively good health until now. Neurological history showed that the patient in the last two weeks had been experiencing increasing amounts of pain in his right leg and back that radiated to the groin. There was no obvious history of numbness. No sphincter disturbance.

PHYSICAL EXAMINATION: He was alert and oriented. His general physical exam was normal with a blood pressure of 120/70. He had flabby abdominal skin from weight loss. On neurological exam of the lower extremities, he had selective weakness of his quadriceps muscle with quite a bit of palpable atrophy. He also had some weakness of the abductors. Distally, he was strong. Sensory exam showed no abnormalities. His right knee jerk, surprisingly, showed no significant abnormalities. There was a spondylolysis present on the CT scan. The patient was admitted. Myelography was recommended.

LABORATORY: White count 5600, hemoglobin 15.2, hematocrit normal. Platelet count was 251,000. CSF neg, Urogram was negative. BUN was 11, creatinine .9. SMA-12 profile showed no abnormalities. X-ray examination of the chest was normal. Lumbar myelogram showed a large ruptured disk at the L3-4 level causing almost a complete block. Central bulging at L4-5 level was found as well as a CT scan verified these findings seen on the myelogram. Flexion/extension films were obtained during myelography but no slippage or instability could be diagnosed. The CT scan at the L3-4 level showed no evidence of dye in the subarachnoid space.

HOSPITAL COURSE: The patient was counseled regarding surgery. The pros, cons of surgery and alternatives were discussed with him. In spite of the fact that his pain pattern was quite atypical, it was felt that the patient could benefit from being operated on to relieve neurological symptoms. He was taken to the Operating Room and lumbar laminectomy at L3-4 level was done with bilateral discectomy with laser. A large amount of disk material was removed. The L4-5 level was explored but no herniation was found. The patient did extremely well postoperatively and his pain subsided. He was ambulating well. He was requesting to go home on the second postoperative day. On the third postoperative day he was discharged. He will be seen in my office for suture removal in one week. He was advised to get plenty of rest and not wet the incision.

FINAL DIAGNOSIS:

1. Ruptured L3-4 disk.
2. Hypertension.

D:

T:

Smith, M.D.