

# Canine Juvenile Orthopedic Disease

Jonathan Miller, DVM, MS, DACVS  
Oradell Animal Hospital  
Paramus, New Jersey

Most juvenile orthopedic disease is developmental in nature, and early treatment is key. In addition to a thorough patient history, the orthopedic examination is a critical first step. Once the abnormal joint(s) is identified, radiographs should be obtained.

## MOST COMMON DISEASES

Puppies often present with single leg lameness; however, anecdotally, many juvenile diseases are bilateral, so a thorough orthopedic examination is always warranted, with special attention to the hips, knees, and elbows. Familiarity with typical historical findings is important, because different pathologies present at different ages.



### Avascular necrosis

Avascular necrosis of the femoral head typically manifests as hip pain in small-breed dogs <1.5 years of age. Treatment is surgical (ie, femoral head and neck excision, total hip replacement), whereas patellar luxation treatment can be medical or surgical depending on clinical signs.

### Osteochondritis dissecans

Osteochondritis dissecans (OCD) is a developmental disease most commonly noted in the shoulder but also seen in the stifle, elbow, or tarsus.<sup>1</sup> Most OCD lesions are best treated with arthroscopic debridement, but an open surgical approach with a bone or cartilage graft may also be performed.

### Elbow dysplasia

*Elbow dysplasia* refers to 4 different diseases affecting the elbow joint: fragmented medial coronoid process, OCD of the medial portion of the humeral condyle, united anconeal process, and elbow incongruity. The most common form is fragmented medial coronoid process; early treat-

ment is key to reduce the typical lifelong progressive arthritis associated with this disease.<sup>2</sup>

### Hip dysplasia

Hip dysplasia can be diagnosed as early as 4 months of age<sup>3</sup>; ventrodorsal and distracted hip radiographs are useful for diagnosis. Early diagnosis allows early medical treatment and, in some cases, certain therapeutic surgical procedures. A bunny-hopping gait when running, lower energy level, and difficulty climbing stairs or jumping are often seen in hip dysplasia patients.

## OTHER DISEASES

Less common diseases include congenital joint luxations, panosteitis, hypertrophic osteodystrophy, cranio-mandibular osteopathy, and angular limb deformity. Dogs of any age may present with a fracture that may manifest as severe pain with non-weight-bearing lameness.

## PROGNOSIS & TREATMENT

Prognosis depends on disease type and severity, likelihood of arthritis development, and patient response to treatment. Some form of treatment is available for most cases.

*A thorough orthopedic examination is always warranted.*

STEP 2  
Treatment Plan ►

# Examination, Radiographs, & Treatment Options

Jonathan Miller, DVM, MS, DACVS  
Oradell Animal Hospital  
Paramus, New Jersey

Early diagnosis and treatment before osteoarthritis formation are often key to successful management. Congenital problems frequently manifest before 1 year of age, so a limp lasting longer than a day should be examined by a veterinarian. Thorough orthopedic examination and radiographs are the foundation of diagnosis and allow formulation of an appropriate treatment plan.

Physical examination findings help determine if limping (ie, lameness) will resolve independently. Pain medications often help, but a definitive diagnosis and radiographs are prudent to avoid long-term problems; however, although radiographs show bone and joint spaces clearly, tendons, ligaments, and cartilage are not represented.

## THE ROLE OF ANESTHETICS

The difference in radiographs of a sedated dog compared with those of an alert dog is astounding, because small changes in rotation or limb extension can be crucial to identify the problem. For example, femur rotation can hide subtle hip dysplasia, or an OCD lesion could be missed with only a rotated or cranial-caudal view of a shoulder. Sedation also allows for Ortolani testing to indicate excessive hip laxity secondary to hip dysplasia; with the dog in lateral recumbency, the pelvic limb is pushed dorsal as the limb is abducted. A distinct *clunk* can be palpated when

the femoral head pops back into the acetabulum following subluxation.

## SURGICAL OPTIONS

Dogs younger than 6 months of age can be treated via juvenile pubic symphysiodesis.<sup>4</sup> Other surgical options include triple pelvic osteotomy (TPO), femoral head and neck excision (FHO), and total hip replacement (THR). TPO is most useful



in dogs under 12 months of age with mild to moderate hip dysplasia and no evidence of osteoarthritis; FHO works best in dogs under 50 pounds; THR is available for dogs of almost any size.

Patients with hip and elbow dysplasia can be treated medically, but often surgery is the best option. Fractures can be fixed with casts, plating, or external fixators. Elbow dysplasia can be treated with arthroscopic corrective osteotomy, which also works well for patella luxation.

Exercise restriction is typically required after a procedure and should be discussed with clients.

In many areas of the United States, veterinary orthopedic specialists are available for consultation or nonsurgical recommendations, as well as referral for surgical therapies.

## MEDICAL MANAGEMENT

Some diseases (eg, panosteitis, hypertrophic osteodystrophy) respond well to medical management. While puppies may grow out of these diseases, other diseases (eg, hip dysplasia, elbow dysplasia) require lifelong monitoring and management. Treatment consists of weight management, diet modification, nutraceuticals, physical rehabilitation, and NSAIDs.

STEP 3  
Team Roles ►

# Team Roles & Responsibilities

Jonathan Miller, DVM, MS, DACVS, Oradell Animal Hospital, Paramus, New Jersey

## RECEPTIONIST

### Patient and client bonding expert, client educator

- Encourage clients calling about a limping puppy to come to the practice for an orthopedic examination
- Mention that pain control is very important
- Offer a gurney if multiple limbs are affected
- Reinforce information about adverse effects of medication
- Be familiar with common surgical treatments

## TECHNICIAN

### Patient caregiver, client educator

- Triage the patient
- Take a thorough history, including when the lameness started, its progression, and any medications
- Evaluate for pain
- Walk the patient down a hallway during the examination
- Know how to obtain high-quality radiographs
- Be familiar with physical therapy modalities
- Educate clients about commonly used medications

## VETERINARIAN

### Medical expert, client and team educator

- Conduct an orthopedic examination
- Recommend a radiographic examination with the patient sedated or anesthetized
- Confirm a diagnosis
- Devise a medical plan consisting of pain medication, diet, weight management or loss, and nutraceuticals
- Consider referral to an orthopedic specialist

## PRACTICE MANAGER

### Workflow facilitator, team and education coordinator

- Develop a brochure of common juvenile orthopedic diseases
- Encourage the team to support early aggressive treatment
- Encourage the veterinarian to provide an overview presentation

STEP 4  
Team Training Plan ►



# Training a Knowledgeable Team

Jennifer Potts, RVT  
Chimney Hills Animal Hospital  
Tulsa, Oklahoma

Proper knowledge of juvenile orthopedic diseases is important for the entire team. An established plan that includes all team members and is reviewed and revised periodically is crucial. Proper training allows each team member to know his or her role and how to effectively communicate with clients.

Practice managers and veterinarians must train the team to ensure that every team member is knowledgeable about the practice's protocol for treating juvenile orthopedic diseases. All team members should be well-versed on the different diseases, diagnostic testing options, and treatment op-

tions (eg, medications, supplements, surgery). They should also understand the importance of obtaining a complete patient history, including over-the-counter medications or supplements the client administers at home.

Practice management training should include team exercises around the following topics to build effective client communication skills:

- The importance of preventive care examinations for juvenile patients
- Costs, and ways to help clients with financial constraints
- Client education about at-home care

- Ways to ensure compliance with treatments and recommended exercises or physical restraint.

Although role-playing and client communication are very important to team training, team members must also understand why they are giving the clients the information. Veterinarians play an important role in helping team members understand the “why” of juvenile orthopedic diseases. Veterinarian presentations should include:

- A general explanation of juvenile orthopedic diseases and the typical presenting signs
- Availability and types of testing (eg, PennHIP, OFA, radiographs)
- Treatments (eg, physical rehabilitation, nutraceuticals and supplements, medications, surgery) and possible adverse effects
- The importance of at-home care and compliance with discharge instructions.

It is also important to attend CE meetings to learn about new diagnostics, treatments, and diseases. Many national conferences offer classes covering topics such as pain management, radiology techniques, and orthopedics, and other topics relevant to all team members.



STEP 5  
Communication Keys ►

# Client Communication Strategy

Jennifer Potts, RVT  
Chimney Hills Animal Hospital  
Tulsa, Oklahoma

Effective communication skills are important for helping clients understand juvenile orthopedic disease and what to expect after a pet's diagnosis. Every team member plays an important role in communicating with clients to help them better understand the condition.

Veterinarians and veterinary technicians must be able to effectively communicate the importance of diagnostics to the client. Once a diagnosis is achieved, the veterinarian must be able to communicate the details of the disease and its treatment, as well as develop a treatment plan. Providing a visual representation with the patient's radiographs or other visual aids can help increase client understanding.

*The most important part of client communication is offering support; all team members should be available to answer questions and listen to client concerns.*

Once the client understands the disease, it is crucial for the team to communicate the importance of at-home care and treatment. Topics that should be discussed include:

- Pain control options (eg, medications, cold or heat therapy, laser therapy)
- Exercise modifications (eg, restricting or modifying activity to allow proper healing)
- Physical rehabilitation and joint supplements
- Follow-up visits and care
- Treatment duration.

Veterinary technicians and receptionists play an important role in maintaining communication with clients about compliance and treatment progress. Follow-up phone calls and visits keep the client accountable, provide patient updates, and establish a strong relationship between the team and the client and patient.



As with any disease process, financial constraints can affect treatment decision-making. All team members should be able to effectively communicate every available option.

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## References

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