Navicular Syndrome

Palmar Foot Pain, Podotrochleosis

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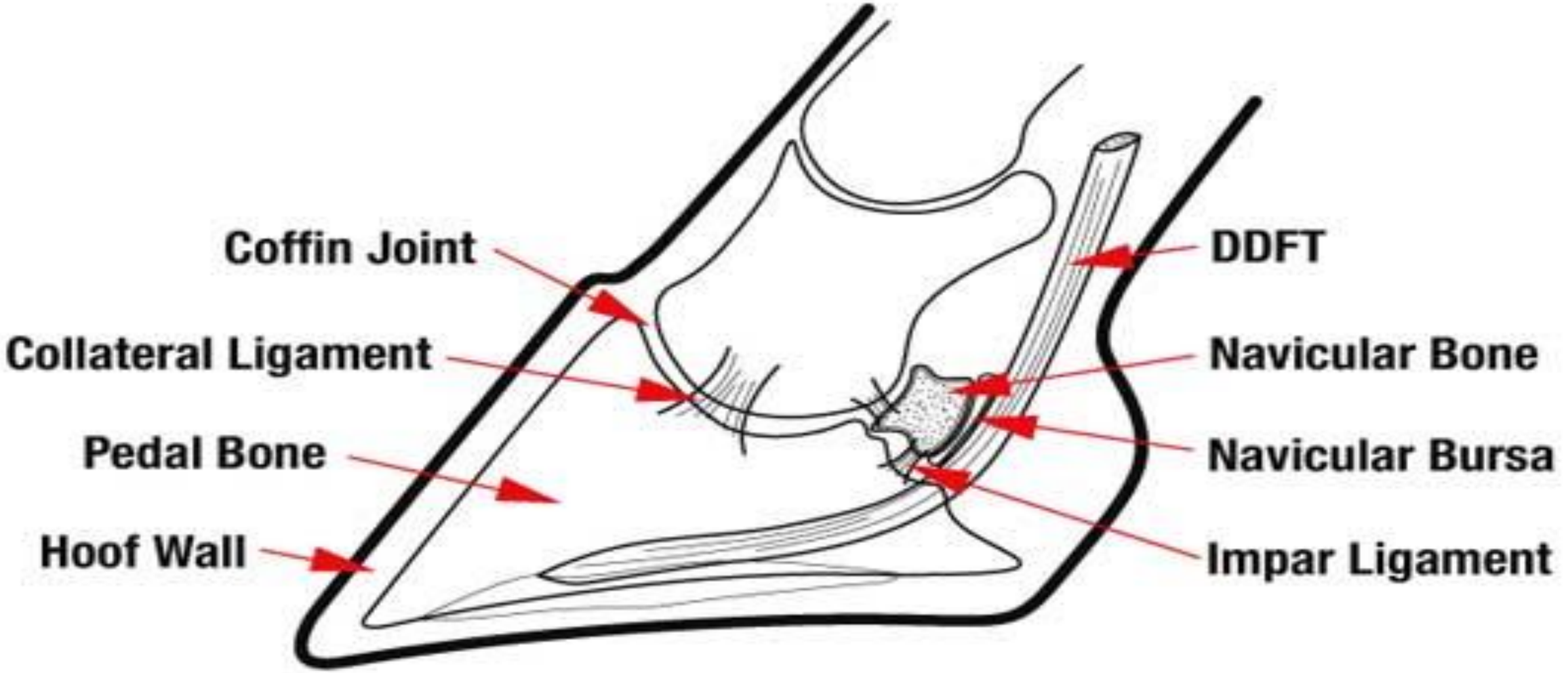
Vet Med 517: Equine Medicine

Navicular Syndrome

Navicular syndrome is a degenerative disease complex of horses that can encompass injuries to any of the structures within the **navicular apparatus of the foot**, including the **navicular bone, navicular bursa, collateral sesamoid ligaments, distal impar ligament, or deep digital flexor tendon**. Certain breeds are predisposed, and the condition is almost always bilateral. Diagnosis is based on clinical signs and evidence from radiographic or advanced imaging techniques. Treatment is palliative and relies on corrective farriery, intrasynovial medication, and NSAIDs. The condition is progressive, and the prognosis is guarded to fair.



Navicular Apparatus

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Etiology and Pathophysiology

Horses that have narrow, upright feet with contracted heels and small, narrow frogs are the most commonly affected.

Horses with small hooves may also have larger bodies and thus are predisposed to this condition because of the high loads concentrated in their small feet.

Etiology and Pathophysiology

Poor distal limb or hoof conformation, hoof imbalances (long toes or low heels), and poor hoof management or inappropriate shoeing (use of too small a shoe) are also thought to be predisposing factors.

In warmblood breeds, navicular syndrome also has a genetic component.

Clinical Findings and Diagnosis

Clinical Findings and Diagnosis

Commonly presents as **bilateral forelimb lameness**, usually worse in one limb.

Lameness may be mild to severe, with signs like **shortened stride**, **shuffling gait**, or **stumbling**.

Often **mistaken as shoulder** lameness by owners.

Horses may show **heel or frog pain** on hoof tester exam and **positive distal limb flexion.**

Toe wedge test may worsen lameness.

Palmar digital nerve block often relieves pain, revealing lameness in the opposite limb.

Clinical Findings and Diagnosis

Radiography helps confirm diagnosis

Cystlike lesions
Enlarged vascular channels
Medullary sclerosis
Enthesiophytes, bone fragments, or flexor cortex erosions

Some horses show **soft tissue injury** even without radiographic changes.

Ultrasonography can visualize parts of the navicular bursa but has **limited diagnostic value.**

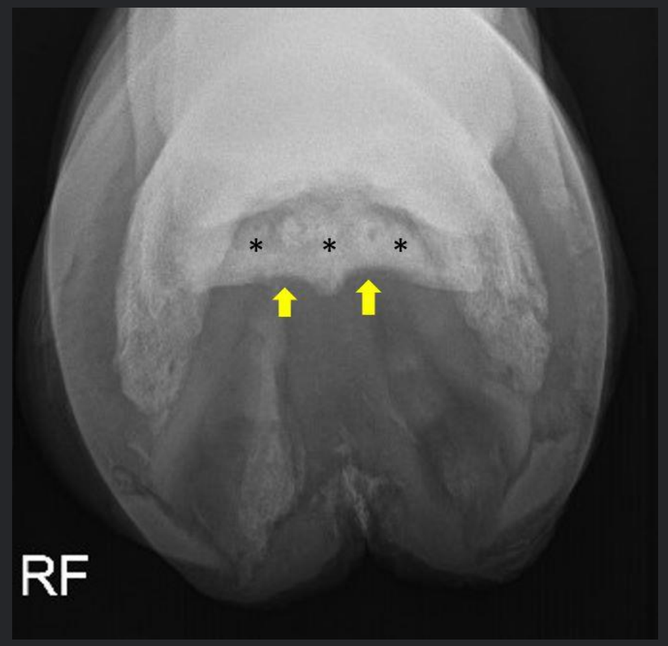
MRI provides the **most detailed evaluation** of all podotrochlear structures.

CT is useful but **less detailed than MRI.**

Navicular Syndrome

Navicular syndrome, enlarged vascular channels, radiograph, horse

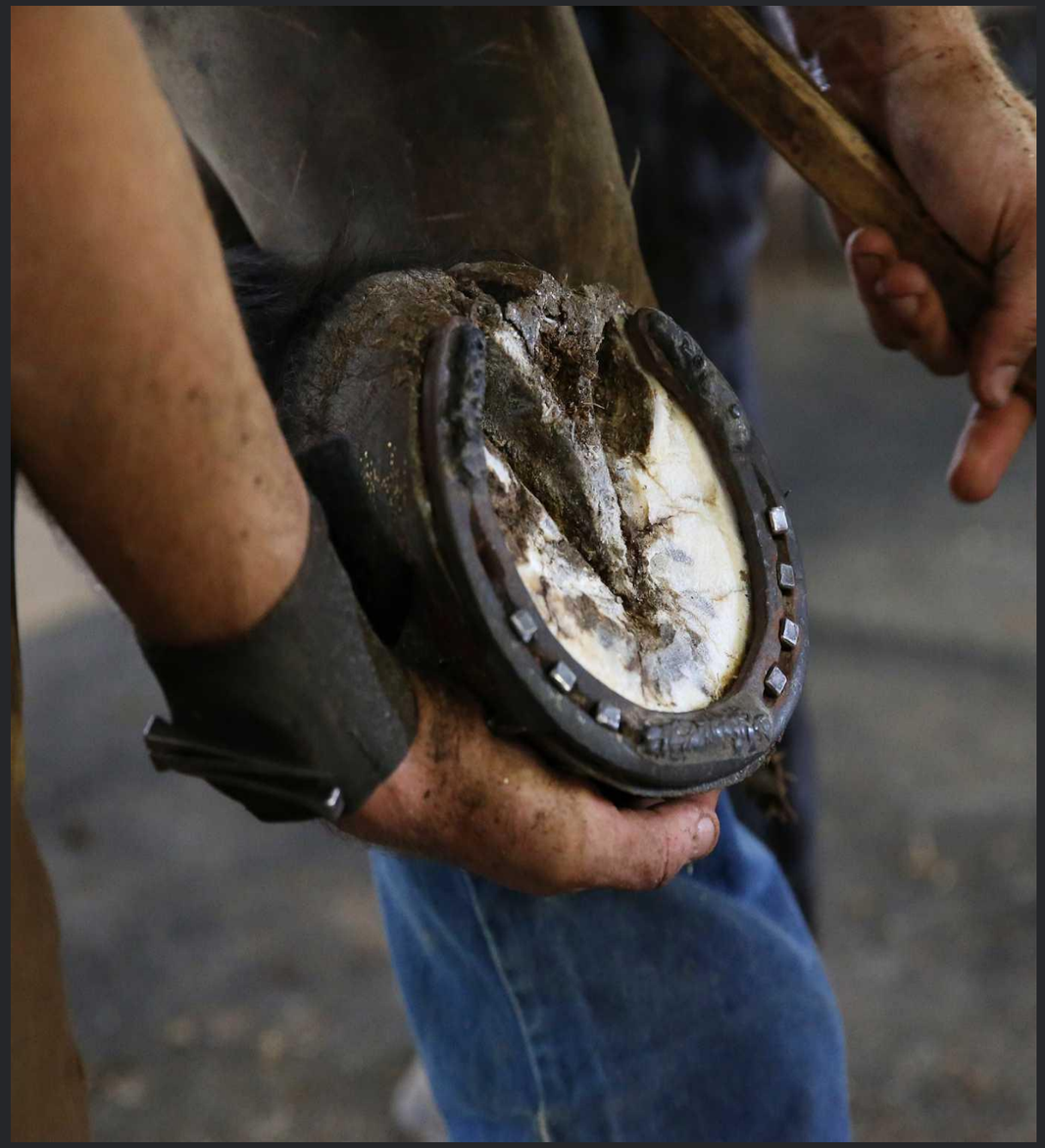
Courtesy of Dr. Ronald Green



Navicular bone degeneration, radiograph, horse

Courtesy of Dr. Valerie J. Moorman

Treatment and Management



- Trimming and shoeing changes
- NSAIDs
- Bisphosphonates
- Intra-articular corticosteroids or biologics
- Navicular bursoscopy and neurectomy of the palmar digital nerves

Conservative (Medical) Management

1. Shoeing changes
2. Regimen of rest
3. Systemic NSAIDs such as phenylbutazone or firocoxib

Conservative (Medical) Management

4. Intrasynovial injection of the DIP or navicular bursa with corticosteroids

5. systemic bisphosphonates (tiludronate disodium or injected clodronate)

6. Extracorporeal shock wave therapy

Conservative (Medical) Management

7

The injection of biologics such as mesenchymal stem cells, autologous conditioned serum, and platelet-rich plasma has been used in some cases with soft tissue lesions in the navicular region.

Surgical Management

1

Navicular Bursoscopy

- Debride **dorsal DDFT tears** or **flexor cortex erosions**.
- **Remove adhesions** in the proximal navicular bursa.

2

Palmar digital neurectomy

- Medical treatment fails.
- There is **no significant DDFT damage** (MRI recommended before surgery).

Surgical Management

3

If DDFT is injured, neurectomy may cause **overuse and tendon rupture.**

4

- **Nerve regrowth** leads to return of lameness within 1–2 years.

Surgical Management

5

Possible Complications

- Painful neuroma formation
- **Undetected foot infection** due to loss of sensation

6

Owner Care

- Regular foot monitoring is essential.
- **Full pad shoeing** can help improve comfort and protection.

Summary

Navicular syndrome is a common cause of bilateral forelimb lameness in middle-aged horses. Many horses have pain in the heel region, which can be elicited by hoof testers. Most horses show marked improvement in lameness with a palmar digital nerve block.

Many treatments are available. The most common are shoeing changes, rest, systemic anti-inflammatory drugs, and medication of synovial structures (distal interphalangeal joint or navicular bursa). Treatment is usually lifelong.

Navicular syndrome is a degenerative condition, and although many horses respond positively to treatment, they may fail to improve with time.

MSD VET MANUAL

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Reviewed/Revised Jun 2024 | Modified Oct 2024

Baxter GM, ed. Adams and Stashak’s Lameness in Horses. 7th ed. Wiley-Blackwell; 2020.


Thanks!
Any questions?