

AI-02049 DDX Big Toe Pain in Long Distance Cycling

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Perform a DDX left big toe pain during long distance cycling after 2 hours. Pain recedes when effort is minimal .

A male long distance cyclist 400 miles per month weekly mileage, long distance swimmer, 58 years old, cardiac patient in 2008 stented, LAD occluded 100%, Asian, retired experienced a sudden pain in the left big toe at mile 10 in a 38 miles training ride. Was able to climb as normal on the first hour.. He took food and water as normal, no change in dietary intake pre 38 miles cycling training on Saturday ride. Had an appendectomy when he was 10 years old. Mother passed away with pancreatic cancer age 86 with a distended stomach blocked by a tumor in the upper colon section from pancreatic cancer. Father had diabetes and passed away with kidney and heart failure at age 55.

Differential diagnosis for left big toe pain during long distance cycling after 2 hours for a 58-year-old male with the provided history includes several possibilities, with a primary focus on biomechanical, inflammatory, and vascular etiologies.

Differential Diagnosis

1. Gout 🦶

This is a very likely cause. Gout is a form of inflammatory arthritis caused by an accumulation of uric acid crystals in a joint. Long distance cycling, especially with the repetitive motion and pressure on the foot, can trigger a gout flare, particularly in the metatarsophalangeal (MTP) joint of the big toe. The patient's age and male gender are risk factors, and while he's not currently diabetic, his family history suggests a predisposition to metabolic issues. A high-purine diet could be a factor, but a sudden flare can also be

triggered by physical stress. The pain often comes on suddenly and can be severe.

2. Morton's Neuroma

Though typically affecting the space between the third and fourth toes, Morton's neuroma can, in some cases, cause referred pain or be present in the interspace near the big toe. It is a thickening of the tissue around a nerve leading to the toes, often caused by pressure or irritation. The repetitive stress of cycling, especially with tight shoes, can exacerbate this condition.

3. Poor Biomechanics / Cycling Shoe Fit

This is a significant possibility. The pain developing at mile 10 suggests that the issue is tied to the sustained, repetitive motion of cycling. Improperly fitted cycling shoes can cause excessive pressure on the big toe joint, leading to pain. Cleat position that is too far forward or backward, or a shoe that is too narrow, can also lead to a concentration of pressure in this area. This would also explain why the pain recedes when the effort is minimal, as the pressure and repetitive stress are reduced.

4. Hallux Limitus / Rigidus

This is a degenerative arthritis of the big toe joint, or hallux, that can cause pain and stiffness. The repetitive plantar flexion and dorsiflexion of the foot during cycling can irritate an already arthritic joint. The patient's age makes this a reasonable consideration.

5. Vascular / Ischemic Pain

The patient's history of coronary artery disease (LAD 100% occlusion) and stenting makes a vascular etiology a concern. While peripheral artery disease (PAD) typically causes calf pain (claudication), it can also manifest as pain in the foot or toes. The pain beginning after sustained effort (2 hours of cycling) and receding with rest is a classic sign of claudication. The patient is at risk for atherosclerosis in other vessels, including those supplying the lower extremities.

6. Other Considerations

- Stress Fracture: Less likely given the sudden onset, but a subtle stress fracture in a metatarsal or a phalanx can cause pain, especially with weight-bearing activities.

- Tendinitis: Inflammation of the tendons surrounding the big toe joint (e.g., extensor hallucis longus) from overuse is a possibility.
- Inflammatory Arthritis: Conditions like rheumatoid arthritis or psoriatic arthritis could be a cause, though less likely to present acutely without a broader symptom picture.
- Nerve Entrapment: Entrapment of a small nerve, such as the medial plantar nerve, can cause pain and numbness in the big toe area.