What is the plantar plate?

The plantar plate is a small fibrocartilaginous structure under the toe joints at the base of your toes. The job of the plantar plate is to provide stability for the joints by acting as an attachment point for ligaments and the joint capsule (the bubble that keeps the joint fluid inside so the there is lubrication for joint movement). These structures are deep in the ‘ball’ of your foot. There is one for each of the lesser toes.

How does it present itself?

You will have pain at the ball of the foot, usually under the second metatarsal head (just behind the second toe). Sometimes it can come on suddenly after a high impact activity, but more commonly, it comes on slowly with time. If the plantar plate tears completely, an upward drift of the toe will occur, causing it to crowd its neighboring toes. You may get pain and swelling in the area. This pain will be worsened by upward bending of the toe. Numbness may result due to the pressure on the nerve that supplies feeling to the second toe and third toe.

How did I injury my plantar plate?

Your plantar plate can be injured by a traumatic event, but most commonly by an overuse scenario. It is commonly seen after patients begin a new walking program or go on vacation and walk a lot in shoes with very little cushion. Wear and tear at the site causes it to stretch out and actually tear or rupture. The most common place for plantar plate injury to occur is under the second metatarsophalangeal joint (the joint at the base of the second toe). This is commonly seen with a bunion deformity where the 1st metatarsal is unstable. Extra forces are placed on the second metatarsal causing injury to the plantar plate.

What can be done about it?

Treatment depends on the severity of the injury. The plantar plate injury is similar to a sprain (a stretching and partial tearing of ligaments and joint capsule).
- If the injury is minor, treatment focuses on the stabilization of the joint through splinting, orthotic therapy, and modification of shoewear.
- Rest and prevention of further injury are also key components to conservative treatment.
- If the injury is more severe, cast boot immobilization is needed.
- Surgery may be necessary for correction of toe deformity and to repair the rupture itself.
- Surgery may also address the contributing factors such as the bunion deformity.