

CLINICIAN'S CORNER

Mastering the Ottawa Ankle Rule: What is it?

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The Ottawa Ankle Rule (OAR) is a clinical decision-making tool to help guide clinicians' decision to obtain an ankle radiograph (x-ray) to rule out a clinically significant ankle or foot fracture among patients who have suffered a blunt, traumatic injury (Stiell et al., 1992). The Ottawa Ankle Rule (OAR) carries a 100% sensitivity for ankle or foot fractures (Stiell et al., 1992) and has been validated for use in multiple studies (Sperry et al., 1999; Stiell et al., 1993). Subsequent studies have found that the OAR can be applied to children aged 2–16 years presenting to the emergency department (ED) with similarly high sensitivity (Plint et al., 1999).

Who can use it?

One randomized control trial in Canada found that triage nurses who were trained to use the OAR were found to have moderate interobserver agreement with physicians (Lee et al., 2016; MacLellan et al., 2017).

When can I use it?

An ankle x-ray can be ordered for patients two years and older who have suffered a blunt, traumatic injury of the ankle (e.g. twisting, fall, direct blow) and meet at least one of the following criteria:

- Bony tenderness to the malleolar zone of the ankle, defined as the lateral and/or medial malleolus extending proximal 6 cm of the tibia
- Unable to take four steps on the affected limb immediately after the injury **AND** in the emergency department.

If the patient meets at least one of the criteria of the above, an ankle x-ray is indicated.

A foot x-ray is indicated in patients two years and older who have suffered a blunt, traumatic injury to their ankle who have pain to palpation in their foot in any of the following structures:

- base of the 5th metatarsal
- cuboid bone
- navicular bone.

How do I do it?

Let's apply this to a case: A 28-year-old basketball player twisted his left ankle after jumping and landing on another player's foot. He was able to walk more than four steps at the time of injury.

1. Obtain a history—remember, the patient needs to have a blunt, traumatic injury.
2. Ask the patient to point to where the pain is the worst.
 - a. The patient points to his lateral malleolus.
3. Palpate.
 - a. Start at the medial malleolus (start where it is least painful) and palpate proximally 6 cm assessing for crepitus and pain.
 - b. Repeat step 3A for the lateral malleolus.
 - i. The patient states he has pain approximately 2 cm from the lateral malleolus.
 - c. Palpate the calcaneus, the navicular bone, the cuboid bone, the base of the 5th metatarsal, and the metatarsals (to look for concurrent injury).
 - i. The patient has no pain in the foot.
 - d. At this point, the OAR indicates an ankle x-ray is needed.
 - e. If the patient had no pain with palpation and **could not** walk four steps in the ED, an ankle x-ray is indicated. If the patient had no pain with palpation, but **could walk** four steps in the ED, an ankle x-ray is not indicated.

What are the pitfalls?

If the ankle or foot looks grossly swollen, deformed, lacks sensation or movement, or has decreased perfusion, serious injury may be present despite a "normal" OAR. Remember, the OAR is a clinical decision-making tool and should not trump clinical judgement. Furthermore, the OAR is meant for blunt, traumatic injuries and not for atraumatic ankle or foot pain.

Consider using the Buffalo Modification to the OAR; this modification involves directly palpating the areas proximal to the proximal and medial malleoli, away from the tendons (Leddy et al., 1998).

Avoid distracting injuries by making a habit to palpate along the entire length of the fibula, tibia, ankle, and foot to rule in concomitant injury.

Finally, always practice within your own local scope of practice, policies, and level of comfort.

Summary

The OAR is a highly sensitive tool for detecting clinically significant fractures to the ankle or foot and can be used for patients two years and older presenting to the emergency department.

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