

The occasional short-leg cast

Gordon Brock, MD, CCFP
Caleb Griffith, RT Orthoped (C)

CJRM 2001;6(1):48-50.

Fractures about the malleoli, unless open, are rarely emergencies. We often prefer to send the patient home to rest overnight, with the leg elevated, and to apply ice packs to reduce the swelling. A posterior slab can provide some degree of pain relief in the interim. A cast can be applied early the next morning. This commonly applied cast is suitable for injuries around the ankle or foot.

Step 1

Prepare for procedure (see Fig. 1).



Fig. 1

- 1-m length of 7.5-cm (for women) or 10-cm (for men) stockinette
- 2 rolls of 10-cm cast padding
- 3 rolls of 15-cm Gypsona plaster bandage
- 1 roll of 10-cm Gypsona plaster bandage
- 4 lengths of slab plaster
- A heel
- Pail of water (20° to 25°C), scissors and shears.

Step 2

Flex the heel to 90°, perpendicular to the anterior tibia, in neutral inversion–eversion. Most people find it easier to work at the heel end. Apply the stockinette. Make a small horizontal incision over the dorsal foot and then fold the distal end of the stockinette over it to avoid bunching over the dorsal foot (see Fig. 2).



Fig. 2

Step 3

Apply cast padding. Start at the ankle, then move down spirally toward the metatarsals, with each turn overlapping by 50% the previous turn. Apply several turns around the heel (see Fig. 3) because this is a potential pressure point, then move upward and toward the knee.



Fig. 3

Step 4

For added comfort make small "flanges" at the knee and toe ends by folding in half transversely a piece of torn-off cast padding, from the second roll, that is long enough to encircle the limb. Apply extra padding over the malleoli, Achilles tendon area and the heads of the metatarsals.

Step 5

Dip a roll of Gypsona plaster bandage into the tepid water for 3–5 seconds, until the bubbling has ceased. Remove from the water and squeeze the roll (gently) twice. For the first plaster roll, commence at the ankle (see Fig. 4), make 3 circumferential turns around the ankle and heel and

then proceed distally toward the toes. Apply the rest of the first roll to the foot, with each turn overlapping by 50% each previous turn of the plaster, then work your way up to below the knee.



Fig. 4

Step 6

Dip the second roll of plaster into the water. For the second plaster roll start at the ankle, then spiral upward toward the knee. You don't need a lot of cast pressure or strength here. Wet your hands as necessary and then mold, using the gentle pressure of both palms. Pay particular attention to proper molding around the malleoli (see Fig. 5).



Fig. 5

Step 7

First, fold the proximal and distal ends of the stockinette down over the second roll of plaster, then apply posterior, medial and lateral slabs (see Fig. 6). An important tip is to support the cast against your chest if the patient cannot maintain proper dorsiflexion. Otherwise, the cast might crack and malalignment of the fracture will occur (see Fig. 7).



Fig. 6



Fig. 7

Female physicians may find this uncomfortable. They might prefer to ask a family member to help support the leg, either by holding onto the distal end of the stockinette in such a way as to maintain 90° of flexion or by using the pressure of the family member's body.

Step 8

For the third plaster roll, start applying the plaster at the knee and then work distally (see Fig. 8). Wet and smooth the cast as necessary, especially around the toes, to avoid irritation.



Fig. 8

Step 9

With slab plaster, build up layers over the bottom of the cast to accept the heel. You have to be a bit artistic here and make sure this support layer for the heel is parallel to the ground. Build up one or more of the ends of these layers as necessary (see Fig. 9).



Fig. 9

Step 10

Apply the heel. Proper positioning is important and people often put the heel too laterally: The foot should be at 90° of dorsiflexion, neutral inversion–eversion and perpendicular to the anterior tibia (see Fig. 10).



Fig. 10

Step 11

To anchor the heel initially, we find it helpful to first stabilize it with a torn off strip of plaster perpendicular to the big toe. The centre of the heel should be perpendicular, in line with the anterior tibia. The heel can then be attached with a roll of 10-cm plaster (see Fig. 11).



Fig. 11

Step 12

Caution the patient not to weight-bear for 48 hours, otherwise it causes pressure on the arch.

Acknowledgement: We thank Dr. Michael Tanzer, Chief of the Department of Orthopedics at the Montreal General Hospital, for his kind help in preparing this article.

Gordon Brock is a Family Physician with the Centre de Santé Temiscaming, Temiscaming, Que.; and Caleb Griffith is a Registered Technician in Orthopedics, Department of Orthopedics, Montreal General Hospital, Montreal, Que.

Reprint requests to: Dr. Gordon Brock, Centre de Santé, Temiscaming QC J0Z 3R0; 819 627-3385, fax 819 627-9932, geebee@neilnet.com

© 2001 Society of Rural Physicians of Canada

