

PLASTER OF PARIS CAST ASSISTING IN THE APPLICATION OF POP CAST

DEFINITION

A solid mould of a part, usually applied in sites for immobilization as in fractures, dislocations and other severe injuries. Most often made of plaster of Paris, fibreglass or plastic - impregnated bandage or encasement applied carefully to the immobilized body part.

PURPOSE

1. To maintain fracture alignment
2. To immobilize a body part that has had surgical reconstruction
3. To promote healing after a joint fusion
4. To prevent deformities
5. To aid non surgical correction of deformities
6. To rest and support weakened or injured structures
7. To rest and protect a diseased bone or joint

EQUIPMENT

1. Plaster or synthetic bandages in desired width
2. Stockinet [tubular knitted material]
3. Cast padding [wedril cotton padding]
4. Splints [for reinforcement] and plaster shoes
5. Cotton, polyester, or polyurethane foam padding for bony prominences
6. Polythelene sheeting or newspaper to protect floor and bed
7. Protective boots, disposable gloves and apron
8. Large plastic lined pail of water at room temperature 21°C - 24°C (70° -75°F) or as recommended by the manufacturer
9. Plaster scissors and marking pen
10. Cast finishing cream for synthetic cast as needed
11. Container for disposals

PROCEDURE

SN	Action	Rationale
1.	Check the physician's order and nursing care plan for specific instructions.	To obtain specific instructions and / or information.

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2.	Explain the procedure to the patient. Instruct the patient what to expect during and after the application of the cast. [It is important to relax the muscles and immobilize the body part to be casted during the procedure].	<p>a. There will be a feeling of warmth as the plaster is applied.</p> <p>b. To allay anxiety and gain patient's cooperation and confidence.</p> <p>If the muscles are contracted during the application, the cast will not fit when muscles are relaxed and the desired position will be lost.</p>
3.	Assess the neurovascular status of the patient before the application of the cast. Assess the continuity of the skin. Report any changes to the physician immediately before applying the cast.	To provide baseline data.
4.	Wash and dry hands (refer to Wash Hands procedure) and put on disposable gloves.	
5.	Draw curtains to ensure privacy.	To avoid embarrassment of the patient.
6.	Spread polyethylene sheet or newspaper.	To protect the floor and the patient's bed.
7.	<p>Apply stockinet and roll cast padding on the extremity or the part to be immobilized.</p> <p>a. Sheet wadding: Apply as smoothly and snugly as possible so that each turn overlaps the proceeding turn by $\frac{2}{3}$ the width of the roll.</p> <p>b. Extra pieces of padding may be placed over bony prominence: olecranon process, malleoli and patella.</p>	<p>Padding is used to pad the sharp cast margins for patient's comfort.</p> <p>To prevent pressure sores, minimize circulatory problems and facilitate cast removal a and b sheet wadding is applied from the cast in the proximal end of the extremity. When too much padding is used, it may shift and produce pressure areas under the cast.</p>
8.	Grasping the face end in one hand and holding the roll in the other hand immerse into the water until air bubbles disperse.	
9.	Expel excess water by squeezing (not wringing) towards the centre of the bandage; hand bandage to operator with free end hanging loose.	The cast will dry more quickly (and thus will acquire maximum strength). Maximum strength is achieved by synthetic cast through chemical reaction.

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10.	Apply the plaster roll quickly starting at the fracture site first, gently and not tightly covering 2/3 of the preceding turn. Then complete the cast beginning from the distal end to the proximal end.	Roll inward towards the patient's body.
11.	Keep the bandage moving and in constant contact with the surface of the extremity. Smooth and rub down successive layers or turn of each bandage into the layers below with the thumbs and thenar eminence's (mound of the palm) in circumferential and longitudinal directions.	This keeps the cast uniformly thick. Rubbing the plaster as it is applied will form a smooth solid and well-fused cast.
12.	Handle plaster casts with the palm not the fingers for at least the first hour after application.	The plaster may indent and thus result in a pressure point, which may cause a pressure sore.
13.	Take tucks in the lower border of the bandage by lifting the bandage off the surface [without tension] and overlapping it in V shape fashion.	Tucking the bandage helps to counter the cast to the changing circumference of the extremity. Do not twist or reverse the bandage to change its direction since this produces sharp cutting edges.
14.	<ol style="list-style-type: none"> Hold the cast steady 2 to 4 minutes till cast sets. Support with <u>cupped</u> hands. Trim the cast to size with a sharp knife. Fold stockinet over edges of cast and anchor with cast material. Indicate on the cast: the site of the injury, date of injury and date of cast application. Wash off the plaster from the skin of the patient with warm water. 	<p>To prevent premature movement of the cast.</p> <p>Stockinet produces smooth comfortable edges in cast. Do not pull too vigorously on the stockinet since this may cause pressure on bony prominence.</p>
15.	Finish synthetic cast with hand cream.	Smooths rough exterior surface.
16.	Elevate the extremity above the level of the heart.	To prevent or reduce swelling.
17.	Allow the cast to dry naturally. Do not use heat.	Heat may cause crushing and heat build-up or moisture to remain on the inside of the cast near the skin, with resulting skin maceration.

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18.	Inspect the skin around the edges for pressure areas or areas of irritation.	
19.	Observe for a foul odour around the cast	This may be indicative of soft tissue damage / infection.
20.	Petal the cast as needed : a. Petal the cast when it is dry. b. Cut adhesive tape into 3 inches lengths. c. Place them on the inside of the cast and tape over the edge to the outside of the cast. d. Have each petal overlap the proceeding one.	This helps smooth the rough edges and prevents the crumbling edges of plaster from breaking off and slipping inside the cast.
21.	Save the piece of cast that has been removed if the cast has been windowed (a hole cut in the cast with a saw to view a wound, skin or pressure area).	
22.	Clean equipment and store readily for use.	
23.	Remove gloves.	
24.	Wash and dry hands (refer to hand washing procedure).	
25.	Document the procedure appropriately. (Document date of the cast application and the position of the cast.) Chart the position of the cast, the colour, warmth, movement and sensation at the cast site; the presence, location and amount of drainage from the wound (if present). Instructions given (see Instructions on how to care for and live with a cast) and the patient's tolerance of the cast.	

