



OSCE 18

Station Overview

Station Title:	Teaching Station: distal radius fracture reduction and procedure for Bier's block.		
Station Summary:	In this station examination candidates discuss with and teach a junior registrar how to reduce and immobilise a distal radius fracture including use of a Bier's block.		
Domains to be Assessed:			
		Domain and (if required) Subdomain	Weighting %
	1	Medical Expertise – Bier's block preparation	30
	2	Medical Expertise – Bier's block procedure	40
	3	Scholarship and Teaching	30
Presentation Key Words:	Scholarship and Teaching; fracture reduction; fracture immobilisation; radius; Bier's block		
Station Tagging:	Patient Type: adult Body Part/System: upper limb Presentation: trauma Diagnosis: distal radius fracture		



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Candidate Instructions

This is a **7 minute** station.

You are the emergency consultant working an evening shift in a regional emergency department.

A junior registrar has assessed a 60 year old male patient who suffered a mechanical fall after slipping on wet leaves. He has sustained an isolated closed fracture of his right distal radius. There is no neurovascular compromise.

Relevant Patient Details:

- Past history: COPD
- Allergies – nil known
- Fasted for 2 hours
- Recorded observations all normal ranges.
 - Systolic blood pressure: 140 mmHg
 - Weight: 80 kg

X-ray report:

Right distal radius fracture with moderate impaction and dorsal angulation.

You have made the decision to reduce the fracture under intravenous regional anaesthesia using a Bier's Block.

Your tasks are to teach the registrar how to:

- Prepare for a Bier's block and fracture reduction
- Perform a reduction and immobilisation of the fracture, using the Bier's block
- Provide appropriate after care

There will be no equipment in the room.

This OSCE will assess the following domains:

- Medical Expertise – 70%
 - Bier's Block Preparation (30%)
 - Bier's Block Procedure (40%)
- Scholarship and Teaching – 30%



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Examiner Instructions

This is a **7 minute** station.

The FACEM role-player is to play a junior registrar training in emergency medicine. The candidate will play the emergency consultant. The setting for the scenario is a regional ED during an evening shift.

The junior registrar has assessed a 60 year old male patient who suffered a mechanical fall after slipping on wet leaves. He has sustained an isolated closed fracture of his right distal radius. There is no neurovascular compromise.

X-ray report: right distal radius fracture with moderate impaction and dorsal angulation.

The emergency consultant (the candidate) has made the decision to reduce the fracture under intravenous regional anaesthesia using a Bier's Block.

The candidate's tasks are to teach the registrar how to:

- prepare for a Bier's block and fracture reduction
- perform a reduction and immobilisation of the fracture, using the Bier's block
- provide appropriate aftercare.

There will be no equipment in the room.

This OSCE will assess the following domains:

- Medical Expertise – 70%
 - Preparation for a Bier's block procedure and fracture reduction (30%)
 - Perform a Bier's block procedure and fracture reduction (40%)
- Scholarship and Teaching – 30%

Prompts may be required to ensure all the required elements are discussed. In broad terms the candidate will need to teach to the junior registrar the key details of each of the following:

- Preparation for Bier's Block
 - Staff / Departmental awareness
 - Equipment / monitoring
 - Administration of appropriate local anaesthetic
- Perform a Bier's block and fracture reduction of fracture
 - Procedure for Bier's block
 - Procedure for reduction
 - Plaster application
 - Aftercare
 - Discharge instructions
 - Follow up

All this information must be delivered in way appropriate for teaching a junior ED registrar.



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Role-player Instructions

- **Gender:** Any
- **Age range:** 25 to 40 years
- **Role to be played by:** FACEM

You are playing the role of a junior registrar training in emergency medicine. The candidate is the emergency consultant.

You have assessed a 60 year old male patient who suffered a mechanical fall after slipping on wet leaves. He has sustained an isolated closed fracture of his right distal radius. There is no neurovascular compromise

X-ray report: right distal radius fracture with moderate impaction and dorsal angulation.

The consultant (the candidate) has made the decision to reduce the fracture under intravenous regional anaesthesia using a Bier's Block.

The candidate's tasks are to teach the registrar how to:

- prepare for a Bier's block and fracture reduction
- perform a reduction and immobilisation of the fracture, using the Bier's block
- provide appropriate aftercare

There will be no equipment in the room.

Prompts may be required to ensure all the required elements are discussed. In broad terms the candidate will need to teach to the junior registrar the key details of each of the following:

- Preparation for Bier's Block
 - Staff / Departmental awareness
 - Equipment / monitoring
 - Administration of appropriate local anaesthetic
- Performance of a Bier's block and reduction of fracture
 - Procedure for Bier's block
 - Procedure for reduction
 - Plaster application
 - Aftercare
 - Discharge instructions
 - Follow up

All this information must be delivered in way appropriate for teaching a junior ED registrar.



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Role-Player Summary Script

Part 1 (0 – 2 mins) Preparation

“Hi, I’m (your name) one of the new junior registrars. I understand we are going to perform a Bier’s block on this patient. How should I prepare before performing the procedure?”

If the candidate asks you what your previous experience is:

- ***“I’ve read about performing a Bier’s block but never done one before”***
- ***“How should I prepare to carry out the procedure? Is it like preparing for a procedural sedation?”***

Additional prompts/probing questions if required:

- ***“You mentioned other staff – how many staff will we need?”***
- ***“Are there any contraindications to the procedure?”***
- ***“Are there any other steps you would take to ensure the patient remains safe?”***
- ***“You mentioned using local anaesthetic. What agent and dose should I use?”***

Please direct the candidate to describe the preparation before the procedure rather than the procedure itself.

There are no logistical issues in the department that would impact the performance of the procedure.

Part 2 (2 – 6 mins) Procedure for Bier’s Block and fracture reduction

a) “Once the patient has been prepared, how should I perform the Bier’s block?”

b) “What technique should I use to reduce the fracture?”

Further prompts/probing questions if required for part 2:

- ***“You mention inflating the cuff - How high should I inflate the cuff?”***
- ***“Are there any possible complications during the procedure that I should look for?”***
- ***“When can we let the cuff down?”***
- ***“What kind of cast will they need?”***

Part 3 (6 – 7 mins) Post procedural care and summation

“After we have reduced the fracture and applied a satisfactory POP, is there anything else I need to do before sending the patient home?”

Further prompts if required:

- ***“Is there anything else I need to do before the patient goes home?”***



CONFIDENTIAL Examiner Rating: OSCE 18

Domain	Criteria	Marking rules to be 'at a minimum level of competence'/other comment	Criteria met / not met
Medical Expertise: Bier's Block Preparation (30%)	• Uses situational awareness to ensure procedure is performed at a safe time: ○ Appropriate staff available: 2 doctors minimum (1x anaesthetic 1x procedure). (1 Dr airway skilled) and ○ Ensures workload of ED is manageable: relates this to non-tertiary ED during an evening shift. • Describes the important features of common procedural equipment: ○ Use of double cuff Bier's Block machine and explains theory. • Patient explanation and verbal or written consent: ○ Indications. Contraindications = LA sensitivity, PVD, Raynaud's, Sickle, Cellulitis, lymphoedema/axillary clearance, AV fistula, Hypertension > 200 mmHg, Uncooperative • Appropriately uses procedural and monitoring equipment: ○ Patient weight and systolic blood pressure (Bier's Block contraindicated if SBP>200) ○ Appropriate cuff / Bier's Block machine with timer – check function and arterial occlusion. ○ Physiological monitoring: ECG and pulse oximetry. Airway trolley ○ Bilateral intravenous access ○ Local Anaesthetics: ▪ Prilocaine 0.5%: 2.5-3 mg/kg or 0.5 ml/kg drawn up (usual adult dose 200 mg or 40 ml) ▪ Lignocaine 1% (dilute with an equal quantity of normal saline to make a 0.5% solution) dose: 3 mg/kg (usual adult dose 180mg) ○ States knows where bicarbonate and intralipid, Methylene Blue trolley are kept. • Preparation fracture reduction ○ plaster ○ Cut plaster ready, crepe bandage ○ Sling ○ Notifies radiology to be ready for post-reduction x-ray	• Demonstrate appropriate situational awareness for department • Reasonable explanation biers block procedure use of double cuff • Contraindications – minimum 2 • Verbal or written consent • Appropriate monitoring and safe practice	
		Candidate Feedback Statements	
		• Outline situational considerations for procedure • Describe features and use of procedural equipment, monitoring and safe practice • Identify contraindications of the procedure • Address patient information and consent	
Medical Expertise: Bier's Block Procedure (40%)	• Use of an appropriate local anaesthetic (Prilocaine or lignocaine). Expect correct concentration and safe dose (see Domain 1 for details). • Describes proficiently performing the procedure ○ Elevate limb to drain venous blood ○ Cuff to 100 mmHg above the patient's systolic pressure (cuff to 240 mm Hg) ○ Prilocaine administration over 90 sec (veins distend, skin colour looks mottled) ○ Check anaesthesia ○ [Procedure] ○ Cuff inflation minimum 20 minutes, maximum 60 minutes after LA administration • Anticipates and manages common complications during and after a procedure ○ Watch for toxicity: numb lips, seizures, arrhythmia (have to mention at least 1) ○ Deflate cuff slowly	Bier's block: • Use of an appropriate local anaesthetic (eg Prilocaine or lignocaine). • Cuff inflated to 100mmHg above patient's systolic pressure • Cuff inflation minimum time (~20 minutes), maximum time (~60 minutes) after LA administration • Watch for toxicity (at least one of): numb lips, seizures, arrhythmia	

Medical Expertise: Bier's Block Procedure - continued. (40%)	<u>Aftercare:</u> Observe until resolution of: ○ Vascular (arterial) perfusion Neurological (sensation and movement) return <u>Procedure</u> • Describes proficiently performing the procedure ○ Reduction: ▪ Traction then volar and ulnar angulation. Remove ipsilateral IV ○ Plaster ▪ Velband or similar padding ▪ Below elbow back slab/ Charnley splint or POP split. ▪ Appropriate moulding, ulnar deviation & slight palmar flexion ▪ Free to flex elbow, thumb free at MCPJ + Fingers free at MCPJ ▪ Crepe +/- haftan etc bandage • Anticipates and manages common complications during and after a procedure ○ Post procedure checks ▪ NV status check post procedure – once block worn off ▪ Check XR – check position of # <u>Aftercare</u> • Creates a safe and clear discharge plan for a patient ○ Sling + Elevation- Sling position so fracture above level of heart ○ Prescribe oral analgesia for discharge ○ Plaster ▪ POP advice ▪ Return advice: Increasing pain, fingers colour change, altered sensation ○ Follow Up Fracture clinic 1 week or something appropriate	Minimal Competence Criteria cont. Joint reduction: • Describes appropriate reduction procedure for fracture • Immobilises fracture • Performs check x ray post procedure • Gives appropriate discharge advice • Arranges follow up Candidate Feedback Statements • Accurately outline steps in performing a Bier's block • Outline possible complications • Describe appropriate reduction procedure • Outline appropriate post procedural care and discharge advice	
Scholarship & Teaching (30%)	Must cover: • Checks for level of prior knowledge/ understanding • Covers the topic in appropriate detail: Key elements reinforced/emphasised And at least four of: • Engages effectively with junior registrar - patient & supportive • Establishes rapport and demonstrates well-paced communication • Uses language appropriate for learner's level: Appropriate level of detail, logical order of instructions, appropriate terminology • Demonstrates a structured approach to the topic • Regularly checks for understanding as episode progresses and also at the end • Invites questions and clarifies any areas of uncertainty • Suggests follow up activities/advises where to find resources. Note: A just at standard candidate may provide a generic answer however an 'above standard' candidate is expected to name a source for the resource e.g. national guideline, published article, specific chapter of textbook.	• Checks previous experience level • Covers topic in appropriate detail • Candidate covers at least 4 out of 7 of the other Station Criteria (left column) Candidate Feedback Statements • Check the level of registrar's prior knowledge/understanding • Cover the topic in appropriate detail • Demonstrate effective teaching skills	