

AMSER Case of the Month

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27 y.o. male w/spastic tetraplegia presenting
with worsening spasticity

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Patient Presentation

HPI: 27 y/o male with spastic tetraplegia managed with a **chronic baclofen pump** presenting with worsening agitation and spasticity, pruritus, restlessness, recent fever, and **symptoms of baclofen withdrawal**

Past Medical History: Basilar artery aneurysm rupture c/b blindness, bilateral large stroke with residual paresis, hydrocephalus s/p VP shunt, c/b dystonia, epilepsy and cortical blindness. Chronic neurologic symptom management using baclofen delivered via an intrathecal pump

Past Surgical History: Recent intrathecal pump revision

Relevant Medications: Baclofen via intrathecal pump

Physical Exam

Physical Exam

- Vitals: BP: BP 112/72 , Pulse 82 , Temp 36.8 °C, Resp 16 , Ht 5' 7" (1.702 m) , BMI 23.81 kg/m² , SpO₂ 95%
- General: No focal deficit present. Alert.
- Neurologic: Oriented to name and place but not date. B/L eyes with L-R nystagmus.
- MSK: Contracted L arm and hand. R arm with mild tremor but normal movements. Bilateral legs with spasticity.

Pertinent Labs

- White Blood Cells: 9.8
- Hemoglobin: 14.8
- Urea Nitrogen: 22
- Lumbar puncture: Negative
- Blood Culture: Negative

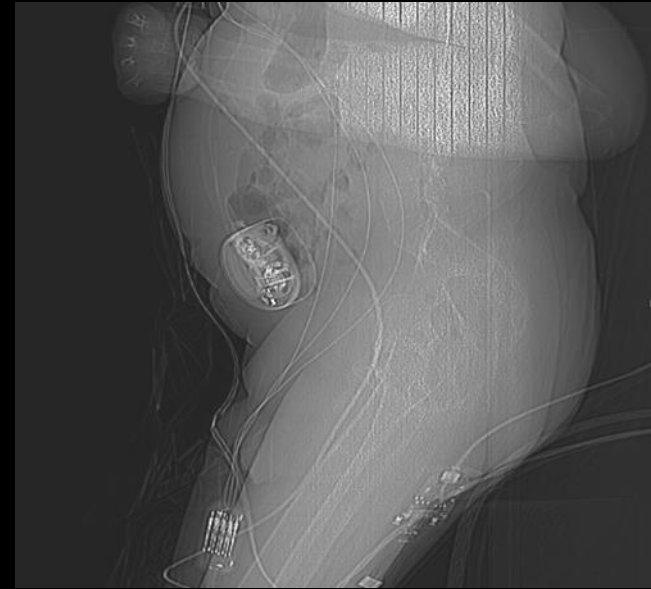
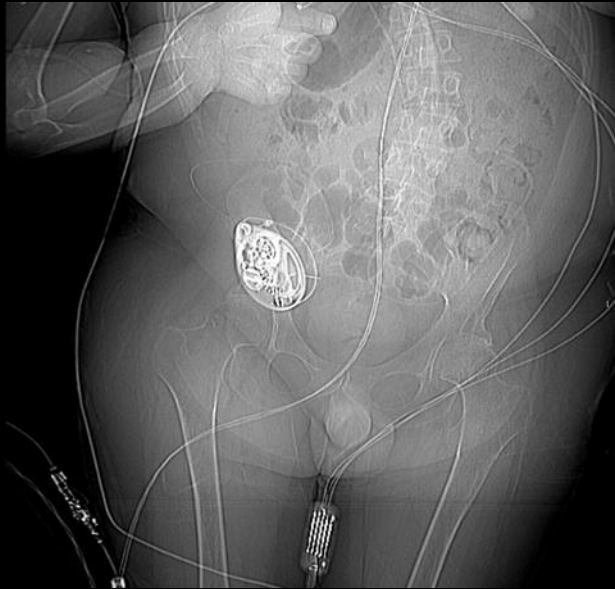
What image should we order to
assess the pump-catheter
system?

Select the applicable ACR Appropriateness Criteria

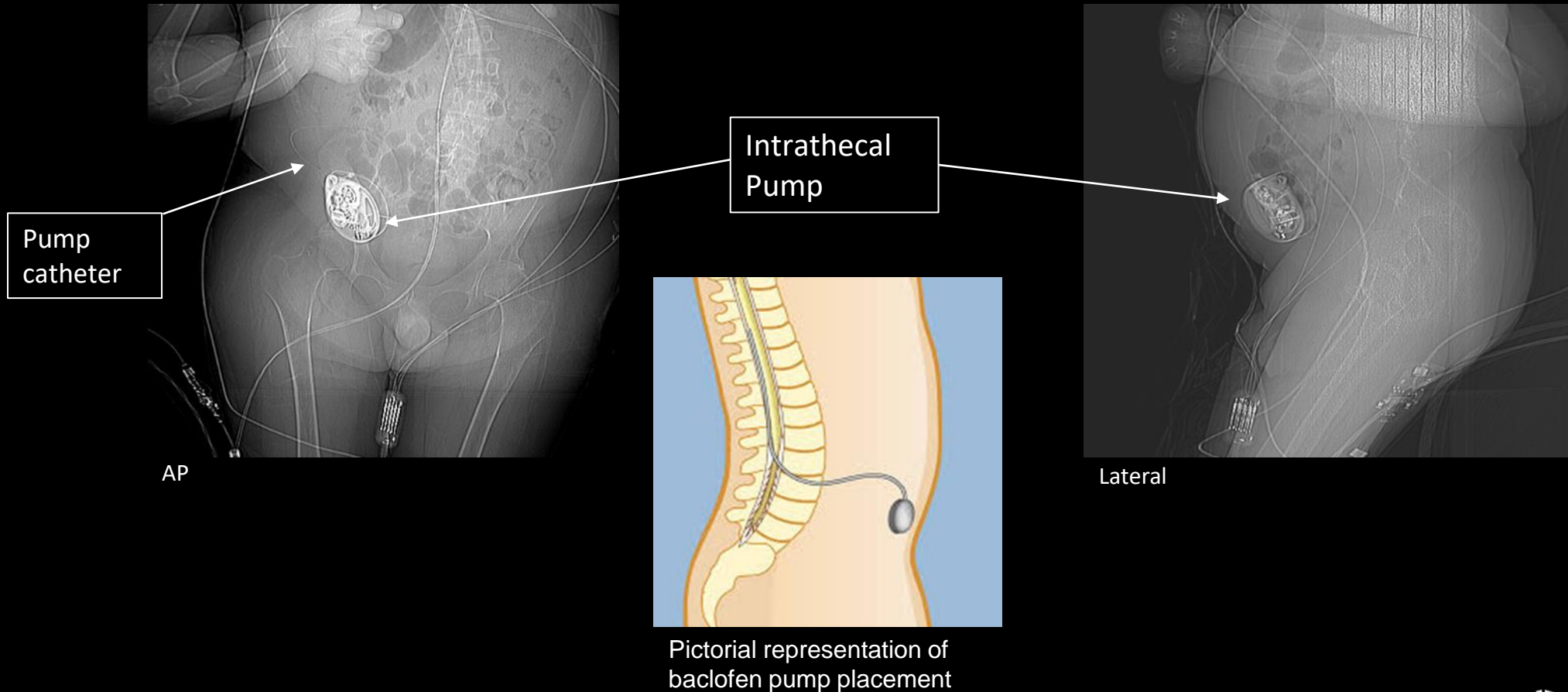
No appropriateness criteria available

- Lateral and AP abdominal radiographs: to assess for catheter **disconnection or dislodgment**
- CT Abdomen / pelvis: to further assess pump system for dislodgement, catheter disconnection or discontinuity, to exclude evidence of infection and for **procedural planning**

Radiograph (not labeled)



Radiograph (labeled)

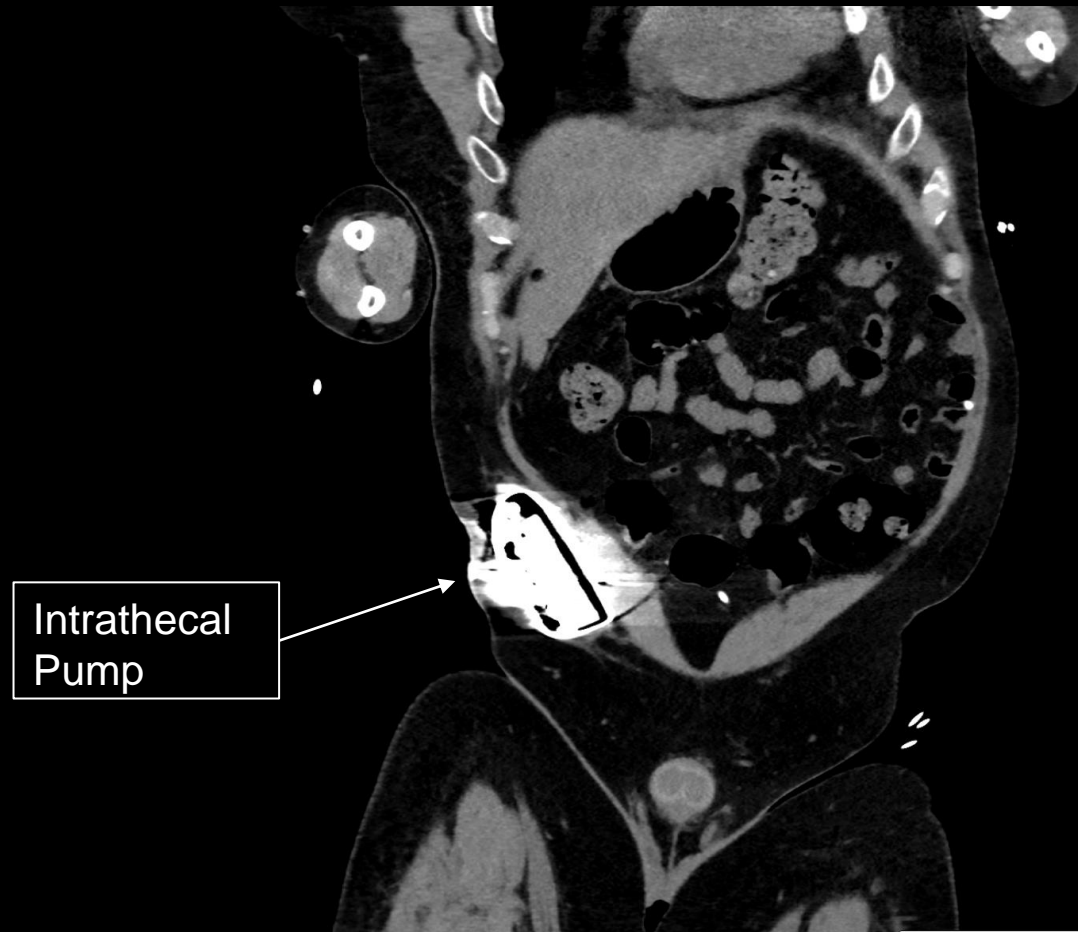


CT abdomen pelvis with IV contrast scout. No obvious catheter dislodgment or disconnection identified.

CT (not labeled)



CT (labeled)



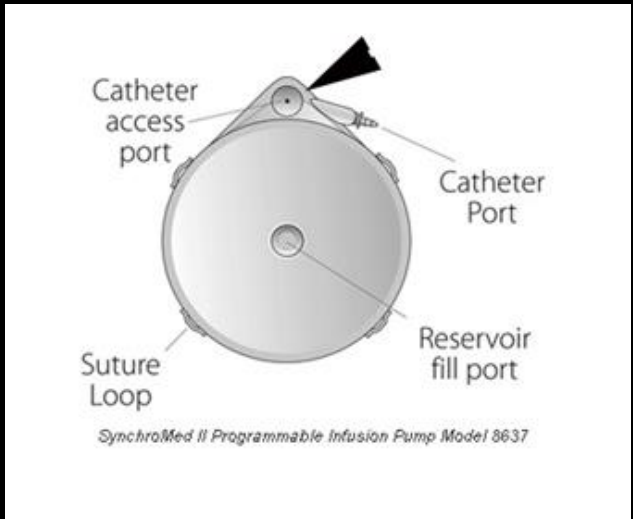
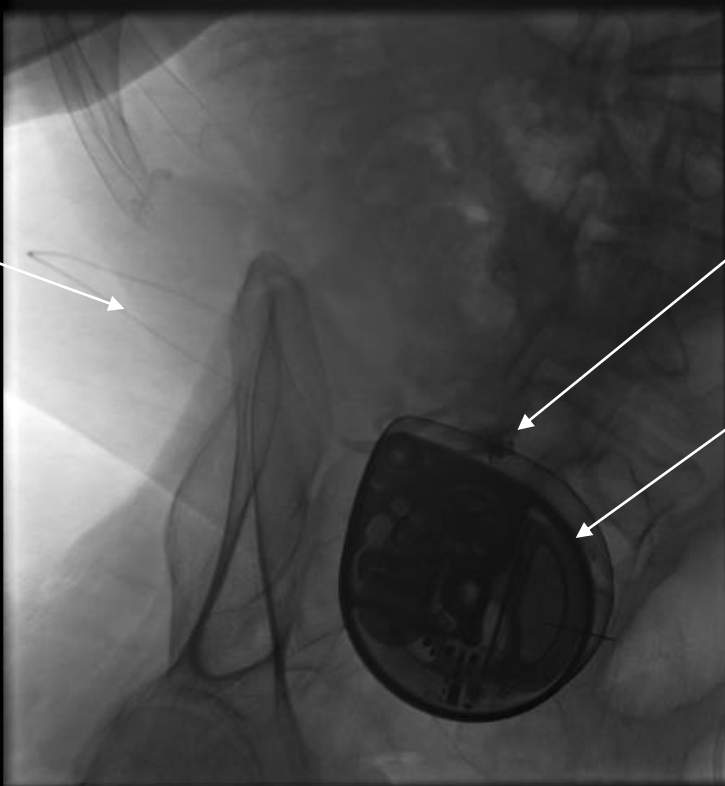
CT chest abdomen pelvis without IV contrast. Coronal view.

Fluoroscopy (labeled)

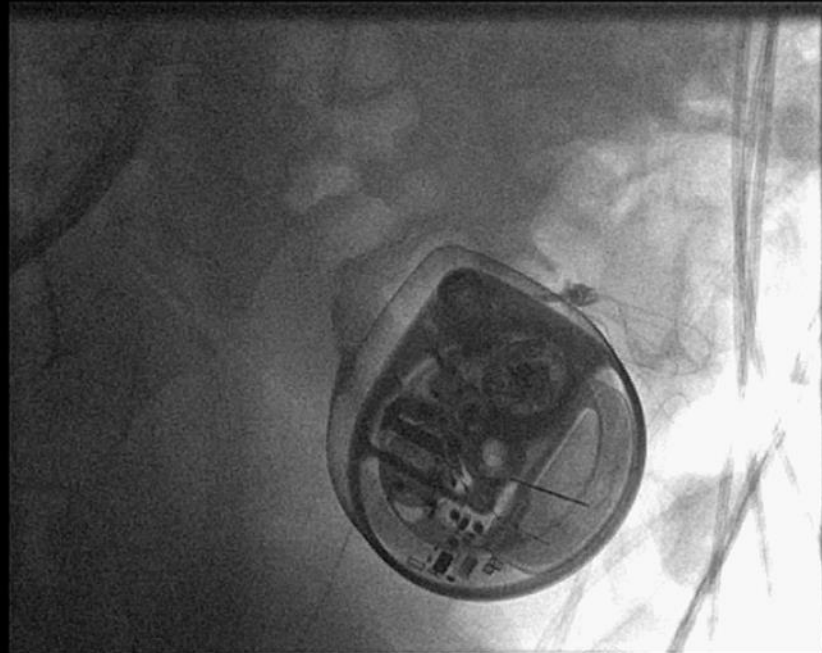
Contrast-enhanced, thick wall, proximal catheter

Access needle

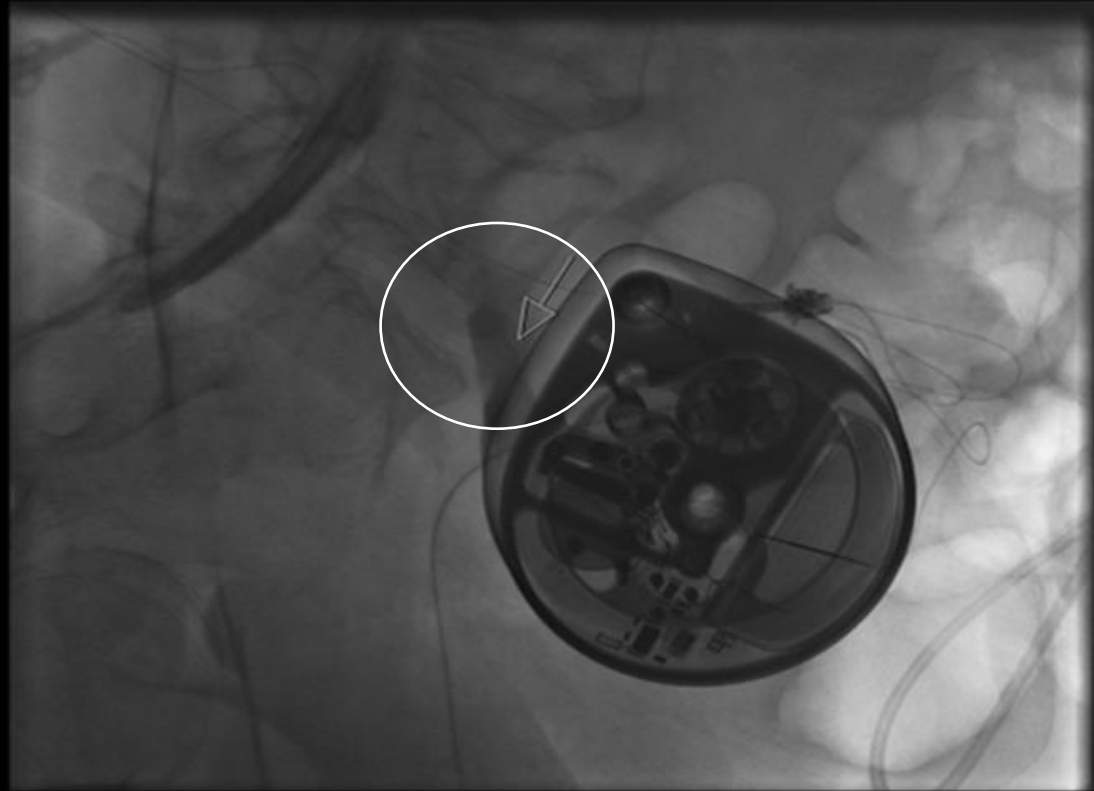
Pump



Fluoroscopy findings (unlabeled)



Fluoroscopy findings (labeled)



leak in the superolateral aspect of
the pump pocket.

Final Dx:

Intrathecal Baclofen Pump Leak

Case Discussion: Intrathecal Baclofen Pump Failure

Epidemiology:

- most common complications are catheter-related, occurring in $\leq 40\%$ of patients with intrathecal baclofen (ITB) pumps.
 - Leak resulting from breakage, cut, or puncture occur in 5%–16% with ITB pumps.

Clinical presentation - general

- Progressive upper motor neuron signs
- Stiffness, weakness, hyperreflexia, muscle spasms, dysphagia
- Sensory signs, intellectual disability, dementia, or ataxia
- Clinical Presentation – our patient
 - Worsening of his chronic neurologic symptoms
 - New onset symptoms of baclofen withdrawal

Case Discussion: Intrathecal Baclofen Pump Failure

Complications of intrathecal baclofen pump:

- overdose
- **withdrawal (our patient)**
 - ✓ Due to **catheter disruption**, failure to refill pump, or failure of pump battery
 - ✓ Abrupt disruption can cause constant spasms, tremors, temperature elevation, seizures, death
 - ✓ Prompt detection and amelioration of baclofen withdrawal to prevent progression of symptoms

Case Discussion: Intrathecal Baclofen Pump Failure

Treatment Method:

- Timely initiation of **urgent baclofen therapy** with oral administration or lumbar puncture in the setting of withdrawal syndrome
- **Analyze pump programming** and the condition of reservoir by provoking the appropriate pump software and hardware.
- Acquire lateral and AP abdominal radiographs to **identify catheter disconnection or dislodgment**
- Consider CT abdomen/pelvis to further assess for dislodgement, catheter disconnection or discontinuity, to exclude evidence of infection or if needed for procedural planning
- **Inject intrathecally approved contrast** through the accessory port of the pump to detect leaks

Case Discussion: Spastic Tetraplegia

Conclusion:

Interventional radiology techniques can be used to evaluate the effectiveness of an intrathecal baclofen pump system in the event of suspected pump failure and to determine the possible requirement for surgical correction.

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