

NEXT PAGE



CLINICAL PATHWAY:
Suspected Neurosurgical Shunt Infection
Appendix A: Obtaining a Detailed History and Physical

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AND DOES NOT
REPLACE CLINICAL
JUDGMENT.

Important factors to consider include:

- **Shunt Type:**
 - ventricular-atrial shunt
 - ventricular-plural shunt
 - ventricular-peritoneal shunt
- **Headache History:**
 - location
 - quality
 - duration
 - treatment
- **Vomiting History:**
 - timing
 - any precipitating events
- **Neurological symptoms:**
 - change in LOC
 - ↑ irritability
 - weakness
 - seizures
 - up/downward gaze
 - ↑ lethargy
- **Abdominal symptoms:**
 - significant ↑ abdominal girth
 - pain
 - tenderness
 - mass
- **General:**
 - trauma
 - fontanel
 - head circumference
 - ↓ breath sounds for pleural shunts



RETURN TO
THE BEGINNING



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CLINICAL PATHWAY:
Suspected Neurosurgical Shunt Infection
Appendix B: Radiographic Appearance of Shunt Valves

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JUDGMENT.

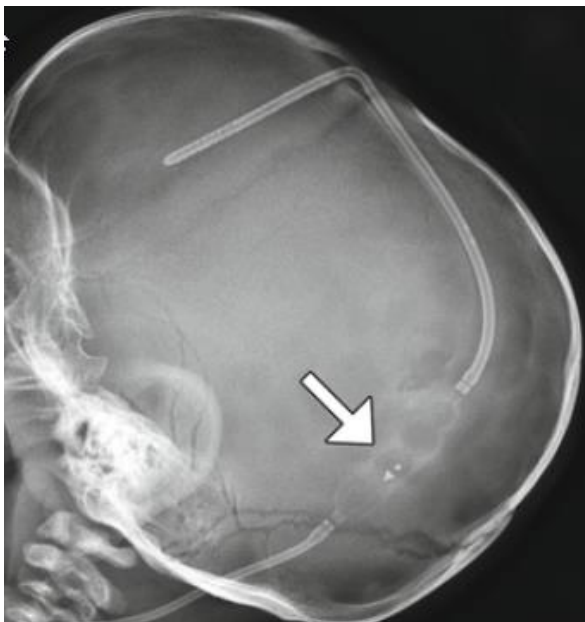
When evaluating the radiographic markings of any implanted device, it is important to recognize that the veracity of your interpretation depends on the quality of the radiographic images. For the best results, x-rays should be taken orthogonally to the plane of the shunt valve. The positioning of the valve relative to the skull base may also obscure the valve markings, as overlapping radiodensities along the skull base can blur valve markings. In more difficult cases, fluoroscopy or 3D CT reconstruction may be used to properly identify the radio-opaque markings on a shunt valve.

It is important to realize that an exhaustive list of all shunt valve radiographic markings is beyond the scope of this appendix. For additional information regarding common shunt valve markings found in North American neurosurgical patients, you may also reference the [ISPN's website](#) on the same topic.

Please see the next several pages for examples of radiographic images of non-programmable and programmable shunts. The sources of these images are:

- <http://www.kinderneurochirurgie-leipzig.de/therapeuticfocus/hydrocephalus/radiologic-identification-of-vp-shunt-valves-and-adjustment/>
- <https://www.ispn.guide/>
- <https://www.medtronic.com/us-en/index.html>
- <https://radiopaedia.org/>

Non-Programmable Valve Examples:



Medtronic Delta Fixed Pressure Valve



RETURN TO
THE BEGINNING

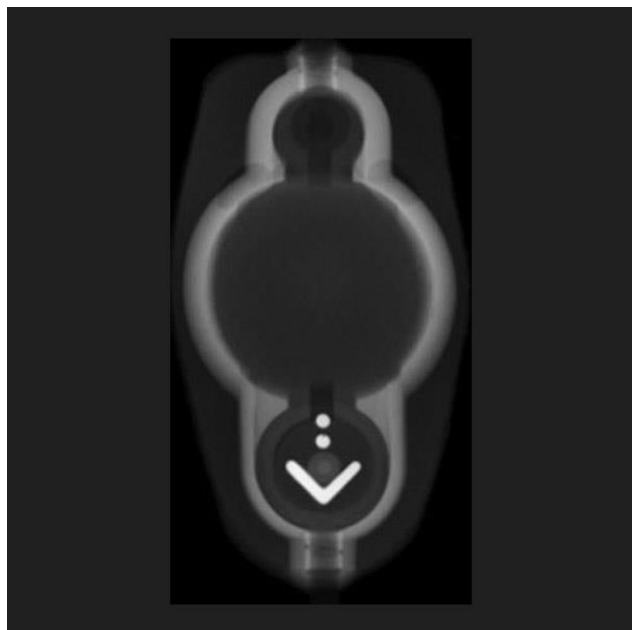


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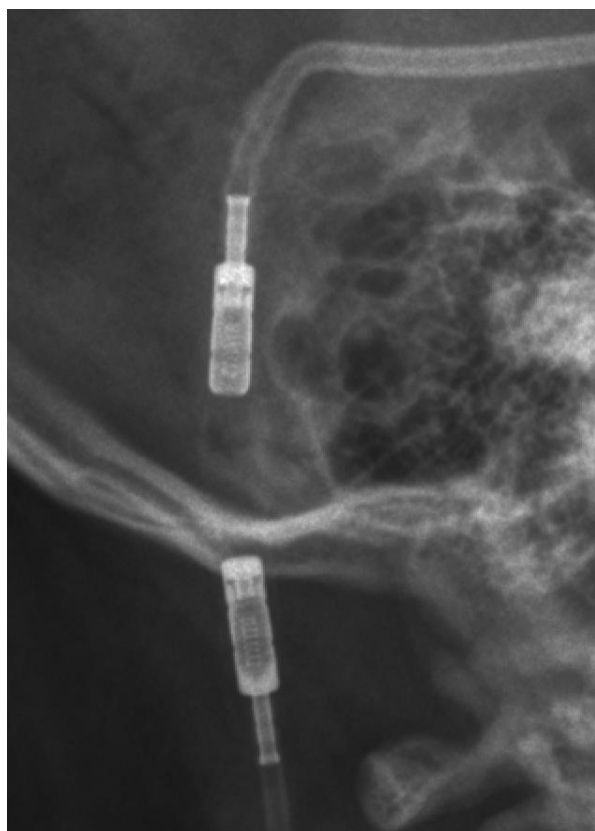
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Medtronic PS Medical Pressure Differential Valve (non-programmable)



Spitz-Holter Non-Programmable Valve



RETURN TO
THE BEGINNING

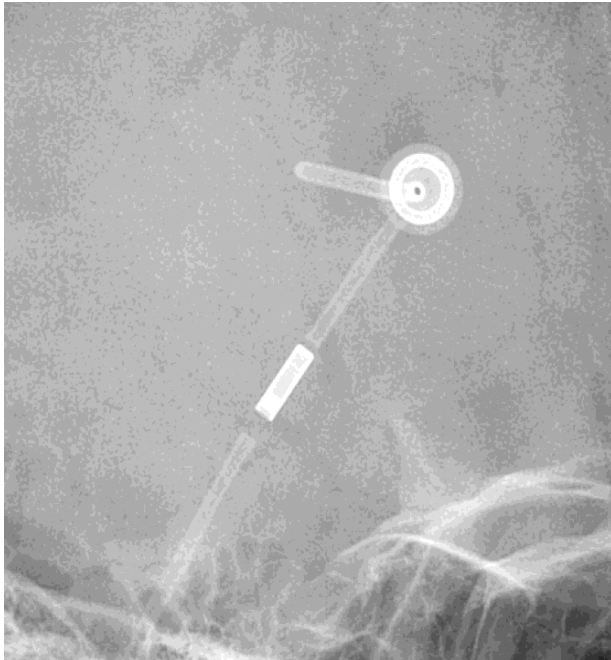


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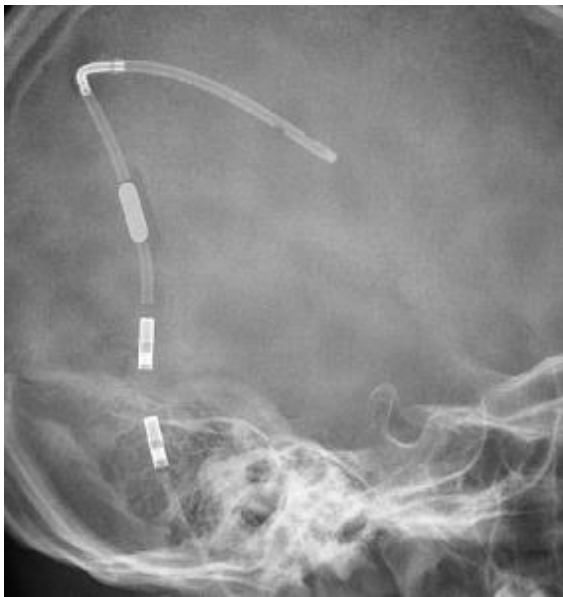
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Integra Omni Shunt Fixed Pressure Valve



Integra DP Fixed Pressure Valve



RETURN TO
THE BEGINNING



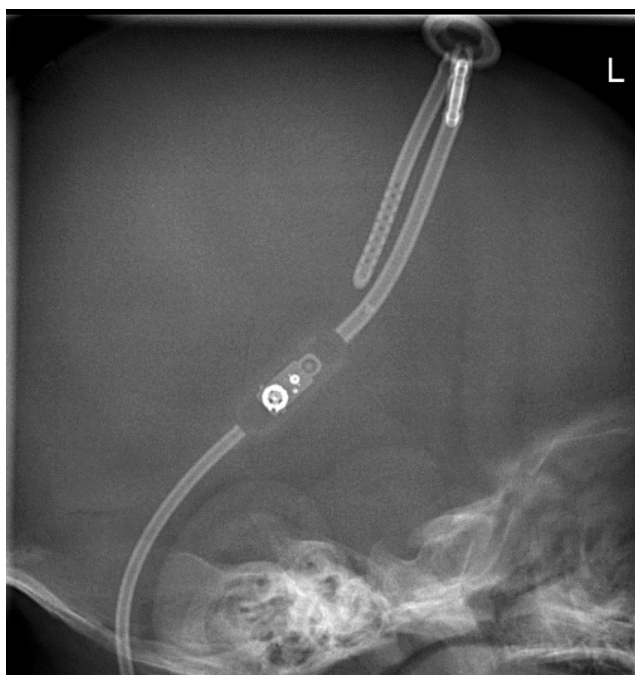
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Programmable Valve Examples:



Strata Programmable Valve



Codman Hakim Programmable Shunt Valve

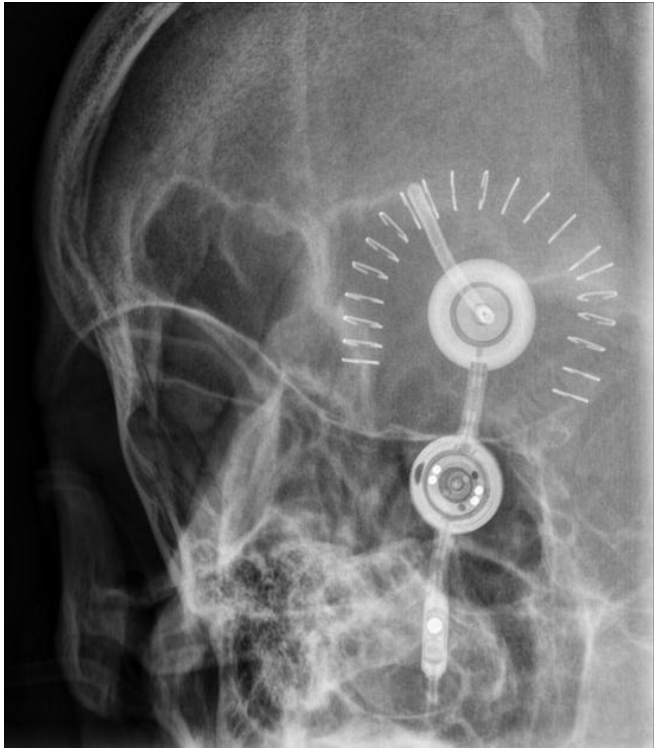


RETURN TO
THE BEGINNING

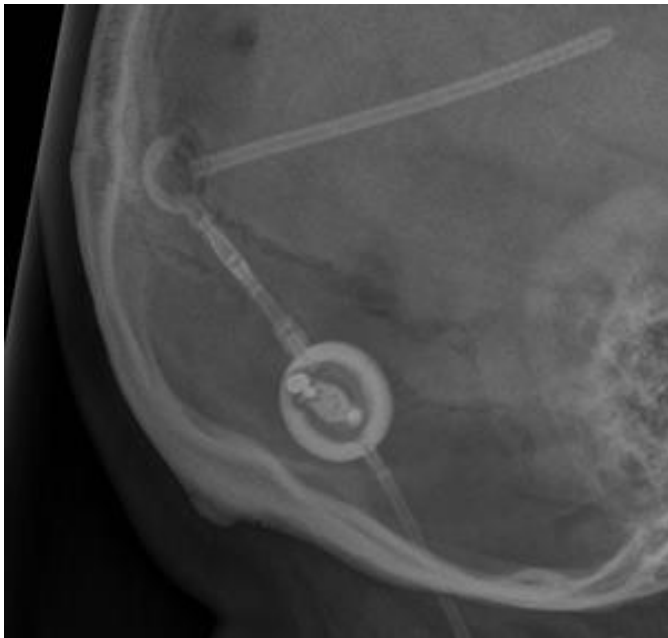


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Unidentified Programmable Valve (likely Sophysa model)



ProGrav Adjustable Valve



RETURN TO
THE BEGINNING



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Sophysa Programmable Valve



Certas Programmable Valve



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