Dripping candle wax sign of melorheostosis
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Section: Musculoskeletal system
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Patient: 30 years, male

Clinical History:
A 30-year-old male patient presented with progressive pain in the right upper extremity.

Imaging Findings:
A 30-year-old male patient presented with the complaints of progressive pain in the right hand and forearm predominantly along the medial aspect. There was no history of stiffness of joints, swelling or erythema. His symptoms gradually progressed over the last 10 months at a very slow pace. Clinical examination was unremarkable. Plain radiographs of the right hand revealed undulating hyperostotic cortical changes along the long axis of the bones of the fourth digit, resembling melting wax dripping down the side of a candle. Similar findings were also seen involving the ulna in the forearm. These findings were confirmed on CT and MR imaging.

Discussion:
Melorheostosis is a rare benign sclerosing bone dysplasia. Its name is derived from the Greek term melos (limb) and rhein (to flow). It is characterised by hyperostosis and bone sclerosis. The sclerosis typically affects one side of the cortex and appears to flow along the long axis of the bone, similar to candle wax dripping down a candle. The dripping (or flowing) candle wax sign has conventionally been described on conventional radiography; however similar findings may be observed on CT or MR imaging. The dripping candle wax sign indicates Melorheostosis (which is also known as Leri’s disease). Melorheostosis tends to be segmental and unilateral in distribution. It is believed to involve one or more segmental sclerotomes i.e. areas of a bone innervated from an individual spinal sensory nerve. It may affect only one bone (monostotic), one limb (monomelic), or multiple bones (polyostotic). The disorder usually affects the appendicular skeleton and rarely the axial skeleton. Lower extremities are more commonly affected as compared to the upper limbs. Bilateral involvement, although very rare, has also been reported. Melorheostosis can present at any age but is most frequently diagnosed in young adults. Patients are often asymptomatic and the condition is frequently diagnosed as an incidental finding. Infrequently patients present with pain, swelling, and restriction of movement or contractures. Melorheostosis is a radiological diagnosis based upon the characteristic radiographic appearance of the disorder. The classic radiographic appearance is that of undulating or lobulated hyperostotic cortical changes located along the long axis of bones i.e. the candle wax dripping sign. Hyperostosis may extend up to the articular surface, however, it usually doesn’t cross the articular surface. These dense, linear, sclerotic changes can also involve cancellous (trabecular) bone. CT and MR imaging are usually not required. If performed, these areas of cortical hyperostosis are seen as high attenuation and low signal intensity on all MR pulse sequences, respectively. Encroachment on the marrow space can be seen well on MR imaging, secondary to endosteal involvement. At times melorheostosis may not display the characteristic imaging findings and instead may demonstrate varied radiologic appearances such as: osteoma-like; myositis
ossificans-like; osteopathia striata-like; or a mixed pattern.

**Differential Diagnosis List:** Dripping Candle Wax Sign of Melorheostosis

**Final Diagnosis:** Dripping Candle Wax Sign of Melorheostosis

**References:**

**Description:** The cortical and medullary based hyperostotic and sclerotic bone lesions demonstrate markedly hypointense signal on this T2-weighted MR image. **Origin:**
**Description:** There is sharp delineation seen between the normal and affected bone segments highlighting the sclerotomal distribution of the disease. **Origin:**
Description: Undulating irregular sclerotic changes are affecting both cortical and trabecular bones. Origin:
Description: Undulating irregular hyperostotic cortical changes are visualised along the long axis of the bones of the fourth digit. This resembles melting wax dripping down the side of a candle. Origin:
**Description:** Hand radiograph shows undulating zones of cortical hyperostosis with a dripping candle wax appearance involving the ring finger of right hand. **Origin:**
Figure 5

Description: Ulnar styloid and the proximal ulnar shaft are also involved. Origin: