

Introduction

- Diffuse idiopathic skeletal hyperostosis (DISH) is a noninflammatory skeletal disorder causing calcifications and ossification of ligaments and tendons
- DISH typically presents more commonly in men over the age of 50 and there is an increase in prevalence with increasing age
- DISH most commonly develops on the right side of the thoracic spine
- Treatment is primarily non-invasive and involves physical therapy and non-steroidal anti-inflammatory drugs
- We present a patient with undiagnosed DISH in whom a spinal cord stimulator (SCS) provided adequate pain relief while the disease progressed to become debilitating

Case Description

- Patient is a 66-year-old female with a longstanding history of lower back pain due to degenerative changes in the lumbar spine
- She had a prior L2-L4 right partial laminectomy in 2017 with significant relief of her symptoms and another lumbar laminectomy in 2020 due to symptom recurrence without any relief
- She was evaluated by neurosurgery in January 2022 and was told definitive treatment of her pain would entail significant invasive spine surgery
- Imaging of the lumbar spine from both 2020 and 2022 showed slowly progressive degeneration from L1-S1
- No thoracic spine imaging was performed or documented at this time
- The patient declined surgery and was instead referred to pain management for an SCS trial in April 2022
- She reported significant improvement in her symptoms after the SCS
- In January 2023 the patient presented to the ED with progressive right-sided lower extremity weakness and a three-day history of urinary incontinence
- CT showed confluent anterolateral osteophytes consistent with DISH extending throughout the thoracic spine to the level of T10-T11. Additionally, an MRI noted degenerative changes with some mass effect on the thoracic spinal cord at T10-T11. This was highly suspicious for edema with cord contusion
- She later underwent a T10-T11 posterior instrumented fusion with reduction of extension/distraction fracture, SCS removal, and posterior T10-T11 laminectomy. She did well after the procedure and reported an improvement in her symptoms with acute inpatient rehabilitation.

Discussion

- DISH can present unique challenges to pain management clinicians
- In this case, the diagnosis of DISH had not been established due to lack of thoracic spine imaging, with the diagnosis at the time being post-laminectomy syndrome from the patient's prior lumbar laminectomies
- This patient's pain was initially very well controlled via SCS. However, the DISH progressively worsened, forming new bony osteophytes
- The leads of the SCS also became ossified, both reducing pain relief and preventing them from being easily removed
- If an MRI or CT of the thoracic spine had been performed earlier in addition to the lumbar spine imaging, the diagnosis of DISH may have been established sooner
- If imaging shows continued progression of the disease process it must be considered that implantation of any devices may result in a higher likelihood of complications.
- Follow up imaging is also imperative, as it may identify disease progression before symptoms advance and can lead to earlier surgical intervention
- It is also key for the pain specialist to discuss lead ossification as a potential complication for SCS, and that if there is disease progression, surgical removal of the leads and decompressive spine surgery may be the only possible methods of symptom control
- Given these factors the only alternative form of pain control aside from surgery currently recommended in these high-risk patients would be steroid injections in conjunction with non-steroidal anti-inflammatory drugs and physical therapy

Conclusion

- While the SCS was beneficial for the patient's pain, it masked the worsening of DISH
- This resulted in her disease progressing unchecked which eventually led to the thoracic cord compression that resulted in hospitalization
- If an MRI or CT of the thoracic spine had been performed earlier in addition to the lumbar spine imaging, the diagnosis of DISH may have been established sooner
- Our aim with this case report is to demonstrate the importance of preoperative imaging as well as follow up imaging to evaluate the progression of DISH and having an extensive conversation with patients about whether an SCS is the right choice to manage their pain
- Educating these patients on the effectiveness of different pain management techniques is of crucial importance and discussing the risks and benefits of all treatment options is vital for good patient outcomes

Imaging

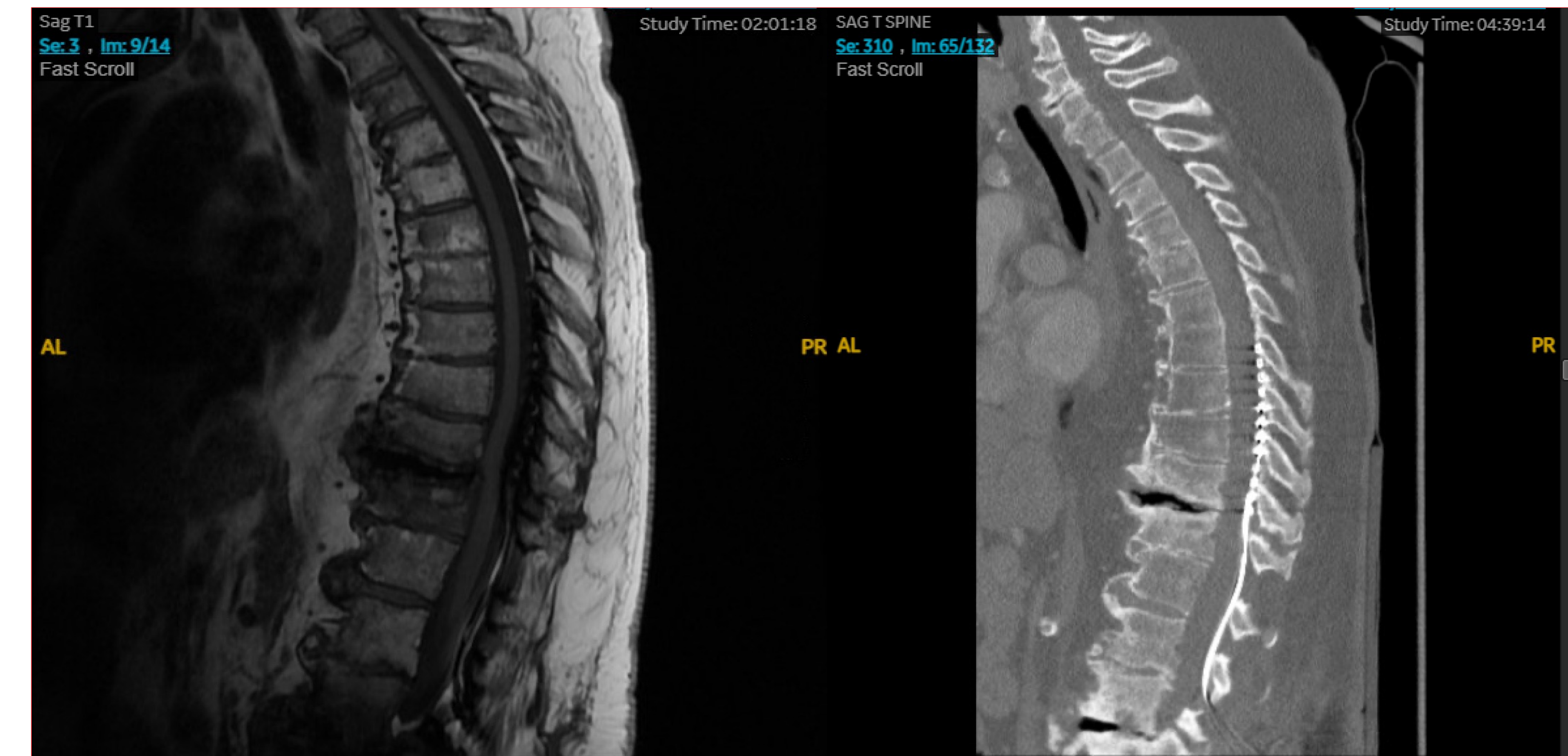


Figure 1

Figure 2

Figure 1: MRI of the thoracic spine showing cord compression at T10-T11; Figure 2: CT of the spine showing confluent osteophytes along the thoracic spine

Acknowledgements

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References

1. Resnick D, Shaul SR, Robins JM. Diffuse idiopathic skeletal hyperostosis (DISH): Forestier's disease with extraspinal manifestations. Radiology. 1975 Jun;115(3):513-24.
2. Mader R, Verlaan JJ, Buskila D. Diffuse idiopathic skeletal hyperostosis: clinical features and pathogenic mechanisms. Nat Rev Rheumatol. 2013 Dec;9(12):741-50.
3. Belanger TA, Rowe DE. Diffuse idiopathic skeletal hyperostosis: musculoskeletal manifestations. J Am Acad Orthop Surg. 2001 Jul-Aug;9(4):258-67.