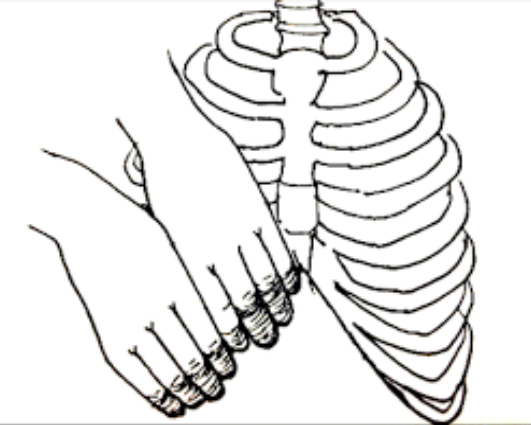


Background

- Slipping rib syndrome (SRS) is a rare and underdiagnosed condition caused by the hypermobility of the ends of the anterior false ribs. This hypermobility causes the ribs to slide out of their normal anatomical position and become pinned underneath their adjacent superior ribs, causing upper abdomen and lower chest pain as the intercostal nerves become entrapped due to constant rib movement.
- Diagnosis is mainly clinical, and information regarding the disorder remains underrepresented in medical literature. Early recognition and intervention are essential for definitive treatment and effective relief.
- Patients typically present with intermittent sharp, unilateral pain in the lower rib cage which is often triggered by movements such as twisting, bending, sneezing, or coughing. This is often accompanied by a dull, aching sensation that can last for hours. Patients may also report a “clicking sensation.”

Case Description

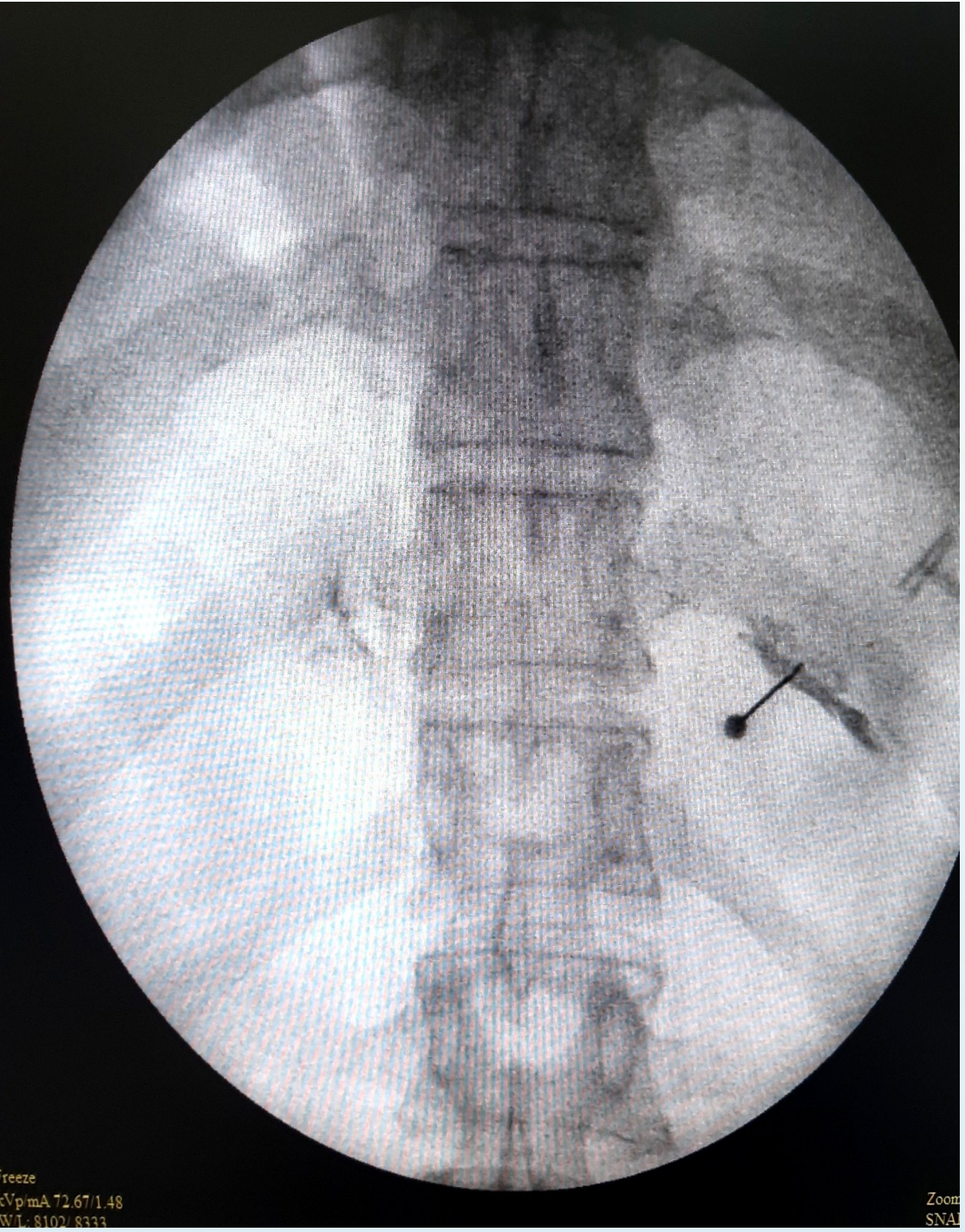
- 60 yo female, PSH of diaphragmatic hernia x2, lap gastric bypass, presenting to thoracic surgery w/ 3 years of left thoracic pain.
- Pain began in 2015 as a dull pain and progressively worsened over time. Laxity was present without external pressure, causing her to have difficulty with daily activities and deep breathing. CXR obtained, showed no displaced rib fracture.
- Using the Hooking maneuver, the patient’s 10th and 11th rib was pulled superiorly/anteriorly causing significant pain.
- Patient was prescribed Gabapentin 300mg TID which did not provide relief so she subsequently underwent T9-T11 diagnostic intercostal nerve block. She experienced significant pain relief and improved functional status reporting 75% pain relief.



Hooking Maneuver

Methods & Materials

- Informed consent was obtained from the patient for research. Initial chest X-ray was unremarkable with no rib displacement or fractures. Patient minimally benefitted from intercostal nerve steroid injections with temporary pain relief in the past. A repeat nerve block was planned.
- The Injectate solution prepared for the procedure included : Triamcinolone 40 mg/ml 1.5 cc and bupivacaine 0.25% 4.4 cc. The fluoroscopic view was optimized for the posterior portions of the T9, T10, T11 left ribs. Skin wheals were raised at the desired points of entry with 1% lidocaine solution with a 25-gauge 1.5-inch needle. 3 22-gauge 3.5in spinal needles were advanced under fluoroscopic guidance to the inferior one third of each of ribs 9, 10 and 11 on the LEFT. Aspiration of the needle was negative. 0.1-0.2 mL of Omnipaque 300 dye demonstrated spread over each rib. 2 cc's of the above solution were injected at each rib. Pressure was held at the puncture site to prevent ecchymosis and oozing and dressings placed.
- The patient tolerated the procedure well with no apparent adverse events or complications.



Results and Discussion

- Initial Progress: There was a 75% reduction in pain following the procedure.
- Follow-up (4 years later):
 - Patient presented with left thoracic pain and rib laxity.
 - Physical Exam Findings:
 - Positive Hooking Maneuver: space under costal margin palpated.
 - Rib cage pulled superiorly and anteriorly.
- Future Management Plan:
 - Additional intercostal nerve blocks planned.
- Challenges in Diagnosis and Management:
 - Slipping Rib Syndrome (SRS) is underdiagnosed and not frequently reported in research.
 - Underdiagnosis may be due to vague symptomatic presentation and lack of objective radiograph
 - Early recognition and appropriate management are essential
- Case Highlights:
 - The case involves a patient with extensive past surgical history diagnosed with SRS.
- Treatment Focus:
 - The primary goal is to control inflammation and pain.
 - Emphasis on conservative measures:
 - Nerve blocks
 - Physical therapy
- Need for Further Research:
 - Explore definitive treatments that can avoid the need for surgery.

Management

- Initial management involves avoidance of aggravating activities in conjunction with topical analgesics or NSAIDs.
- For longer-lasting results, intercostal injections containing local anesthetic and steroids are indicated.
 - Relief with injections may aid in confirming the diagnosis and ruling out other causes of similar pain such as fracture or contusion
 - Typically takes 2-3 days to take effect and provides pain relief for months to years
- If conservative measures fail, surgical resection of the subperiosteum and hypermobile costal cartilages is considered.
 - If rib excision is not curative, bioabsorbable rib plating techniques traditionally used for fracture repair may be utilized to vertically plate ribs and mechanically separate the hypermobile ribs
 - However, recovery time is anywhere between 4-8 weeks from surgery

References

(1) Fares MY, Dimassi Z, Baydoun H, Musharrafieh U. Slipping Rib Syndrome: Solving the Mystery of the Shooting Pain. Am J Med Sci. 2019 Feb;357(2):168-173. doi: 10.1016/j.amjms.2018.10.007. Epub 2018 Oct 23. PMID: 30509726.

(2) Gress K, Charipova K, Kassem H, Berger AA, Cornett EM, Hasoon J, Schwartz R, Kaye AD, Viswanath O, Urits I. A Comprehensive Review of Slipping Rib Syndrome: Treatment and Management. Psychopharmacol Bull. 2020 Oct 15;50(4 Suppl 1):189-196. PMID: 33633425; PMCID: PMC7901126.

(3) Wright, R. E., & Tiel-van Buul, M. M. (2018). Slipping rib syndrome: An elusive diagnosis. *Seminars in Pediatric Surgery*, 27(4), 215-218.