Slipping Rib Syndrome: An Uncommon Cause of Abdominal Pain

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Introduction
Slipping rib syndrome (SRS) is an uncommon cause of rib, subcostal and upper abdominal pain. It has been well described in adults however is very rarely discussed in the pediatric population (3). The pathophysiology stems from costal cartilage of the inferior rib “slipping” underneath the superior rib irritating the intercostal nerves, intercostal muscles and costal cartilage (1,4). SRS is usually associated with trauma to the chest wall but cases have been reported without any traumatic event. Though the syndrome is well described, it is underdiagnosed and often missed for extended periods of time (1). We report the case of a 16 year old male who presented with severe left sided upper quadrant pain for approximately 10 months with extensive work up prior to our diagnosis and treatment. A simple physical examination maneuver and appropriate management can prevent patients from undergoing unnecessary costly diagnostic procedures and have a timely resolution to their pain.

Case Presentation
16 year old male presents to pediatric pain clinic for evaluation of left sided subcostal and upper abdominal pain. Pain started approximately 10 months prior to visit. He described it as sharp and constant. He states it is about 7/10 on the verbal numeric pain scale and it limits his daily activities. Pain is made worse by any physical activity including walking or standing from seated position. Approximately one week prior to onset of pain, patients reports he was wrestling with his father. There was no obvious direct trauma to the area. He was severely incapacitated by the pain and his mother was concerned he wouldn’t graduate high school.

Work up included multiple x-rays, MRIs, endoscopies and colonoscopies which were all normal. Medical management with Tylenol #3 and Lyrica failed. Trigger point injections also failed. Examination revealed a soft, non-distended abdomen, non-tender to palpation except over the left subcostal margin. The ‘Hook maneuver’ was performed to elicit a slipped rib which reproduced his pain. The rest of the exam was normal. Left intercostal nerve blocks with local anesthetic were performed at the 9th, 10th and 11th levels which relieved the pain for 10 hours. He was referred for surgery after failing conservative therapy. Surgeon performed costal rib cartilage removal and remodeling because the cartilage of 12th rib was impinging on the 11th rib causing his symptoms. On follow up he had no pain and was able to resume all activities.

Discussion/Conclusion
SRS is rare in the pediatric population. The diagnostic method of choice is the ‘Hook maneuver’. For this the patient lies on his unaffected side or supine, while the examiner hooks their fingers under the costal margin and pulls anteriorly. A positive test reproduces the patient’s pain and a click. It is impossible to make this diagnosis with radiologic investigation2. Diagnosis can be confirmed with relief of symptoms with intercostal nerve blocks4. Unfortunately, due to limited number of cases, it is often unrecognized and incorrectly managed for extended periods of time. Patients are sent for many unnecessary diagnostic tests and invasive procedures and continue to be burdened by the pain. Once diagnosis is confirmed treatment can be prescribed based on severity of symptoms5. This case shows that thorough physical examination can help avoid these unnecessary test and procedures while providing early diagnosis and treatment.

Figure 1: Diagram (left) and model (right) of “Hooking Maneuver” courtesy of practicelpainmanagement.com

References
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