







Review Article

Precordial Catch Syndrome: Unveiling a Benign Yet Noteworthy Cause of Chest Pain in the YoungJonathan Koswara^{1*} , Jery Chen² , Irianto Yap³ , Denny Suwanto⁴ , Evelyne Chandra^{5,6}¹Deli General Hospital, Medan, Indonesia.²Hermima General Hospital, Sukabumi, Indonesia.³RSUP Prof. dr. I.G.N.G. Ngoerah, Denpasar, Indonesia.⁴Department of Cardiology and Vascular Medicine, Mahawira Prima Indonesia General Hospital, Deli Serdang, Indonesia.⁵Faculty of Medicine, Universitas Airlangga, Surabaya, Indonesia.

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jonathankoswara@yahoo.com

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ABSTRACT

Background: This syndrome is rarely discussed in the differential diagnosis of chest pain, as it deserves wider recognition. Pediatricians report that PCS accounts for 80% to 90% of chest discomfort in the absence of trauma, primarily in adolescent and young adults. The classic pain history can help identify precordial catch syndrome, often eliminating the need for further testing or referrals. The diagnosis of precordial catch can be challenging due to various inconclusive workups. However, once diagnosed, this condition can be managed conservatively. **Objective:** This review sought to describe the distinctive features of the syndrome and its management strategy. **Method:** Descriptive review method was used in this study to provide a comprehensive overview for this study. **Results:** The pain is sudden in onset, is severe, and is localized above the cardiac apex (fifth intercostal space within the left midclavicular line). General testing is required to exclude various conditions., but several tests like ECG and chest x-ray can be done to rule out other causes of chest pain. Though in pediatric considerations, classic pain history can help identify PCS, often eliminating the need for further testing or referrals. **Conclusion:** This syndrome deserves wider recognition because it is rarely discussed in the differential diagnosis of precordial pain. Pediatricians report that precordial catch accounts for 80% to 90% of chest pain once any chest trauma is excluded.

Highlights:

An insight on how precordial catch syndrome could be a potential research base for further research because of how rare it is discussed.

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Introduction

Precordial catch syndrome or 'Texidor's Twinge' was first described in 1955 by Albert J. Miller and Teodoro A. Texidor, which is characterized by the sudden onset of sharp, stabbing and well-localized chest pain. It was believed to be a common cause of chest pain among children, frequently presenting between the ages of 6 and 12 years. Episodes could last between 30 seconds and 3 minutes and are seldom associated with other symptoms. Its source is unknown and reassurance is the treatment offered.^[1]

Precordial catch syndrome was diagnosed in children that has chest pain as their primary complaint. The typical pain of precordial catch syndrome is sudden, brief, periapical, localized, non-radiating, non-exertional, and importantly, intensified by inspiration.^[2]

The precordial catch syndrome is frequently mentioned as part of a long differential diagnosis of chest pain especially in children. It is an extremely common complaint but remains underrecognized.^[3]

Precordial catch syndrome, also known as Texidor's twinge, is a common cause of chest wall pain. It frequently occurred mostly in adolescents

and young adults and according to Waldman (2019) is the cause of anxiety among patients and clinicians alike, given the intensity of the pain and its frequent attribution to the heart.^[4]

The prevalence of precordial catch syndrome varies between studies. Several studies stated that PCS accounts for 62-75% of the most common musculoskeletal chest pain complaints ^[5,6]. The cause of precordial catch syndrome is unknown, but it is thought to be muscle spasms due to body habitus.

Methods

The present review followed the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) 2020 ^[7]. No ethical approval was required as no patients directly participated in this study and all the used data have already been published.

This study uses descriptive review method. It focuses on the clinical presentation and diagnosis of PCS, the differentiation of its symptoms to other causes of chest pain, its management, and pediatric considerations.

Result

Clinical Presentation

Precordial catch syndrome typically occurs at rest, often while the patient sits in a recline position. Symptoms tend to begin without any warning signs, only adding to the patient’s anxiety. The pain usually lasts from 30 seconds to 3 minutes, and it is often made worse by deep inspiration. Patients suffering from precordial catch syndrome usually outgrow the syndrome by the third decade of life.^[4]

This syndrome is responsible for about 15% of noncardiac chest pain cases and is distinctive because it can happen either at rest or with minimal activity. This harmless condition, with an unknown cause, often worsens with deep breaths and is linked to a slouched posture, which improves when moving to an upright position.^[7]

Precordial catch syndrome involves a short, sharp pain lasting several seconds, located below the left nipple or at the lower left edge of the sternum. This pain is often pleuritic and can become more pronounced when bending forward, frequently causing the patient to take shallow breaths.^[8]

The pain begins suddenly, is intense, and is located above the heart’s apex (fifth intercostal space along the left midclavicular line). The immediate response to the pain is to stop breathing mid-inhale or exhale, although the pain typically occurs at or near the peak of a normal breath. Breathing then becomes

shallow, and trying to take a deep breath worsens the chest pain.^[9]

The pain is often described as stabbing, shooting, needle-like, or knife-like. It can occur while resting, such as when watching TV in a slouched position, or during mild to moderate physical activity. People typically indicate the pain’s location by pointing with their fingertips to an intercostal space, unlike anginal pain, which is usually shown with a clenched fist or flat hand. The pain is brief, generally transient, and rarely lasts more than a minute. It is important to take time over the history and examination details to be in a strong position to reassure the parent that there is either nothing clinically wrong or that there is only a slight abnormality.^[10]

Table 1. Characteristics of Precordial Catch Syndrome^[3]

Sudden onset
Frequently occurs at rest
Very well-localized within chest/precordial
Sharp, stabbing pain
Exacerbated by deep inspiration
Sudden and complete resolution
Usually lasting for 30 seconds to 3 minutes
Normal physical findings



Diagnosis

Precordial catch syndrome is a benign disease. Its diagnosis can be done by a detailed history and physical examination [11]. General testing is required to exclude various conditions., but several tests like ECG and chest x-ray can be done to rule out other causes of chest pain. Cardiac enzymes also can be used to rule out myocardial injury if necessary.[12]

Throughout the history-taking process, physicians should see if the symptoms fit the description of precordial catch syndrome. Chest pain is caused by irritation and/or compression of nerve fibers in the pleura or ribcage. Therefore, any insults in those structures may elicit chest discomfort [12]. In PCS, the pain is well-localized, sharp, stabbing, or needle-like pain that does not radiate and lasts only seconds to minutes. Some sources say 30 seconds to 3-5 minutes.[13]

An illustrative case by Hayes et al described two elite swimmers with a history of asthma, who experienced a sudden onset of stabbing chest pain and dyspnea following practicing. Following several tests in the hospital, no cardiac causes of chest pain could be determined. It is, however, not clear whether asthma may be a risk factor for eliciting precordial catch syndrome. Thus, characteristically, the pain occurs without any provocation, either during rest or mild activity. One vital clue is that the pain is aggravated with deep inspiration. Occasionally, aggravating pain sensations could cause patients to hold their breath or to breathe shallowly.[14,15,16]

Table 2. Key points in evaluating possible musculoskeletal-related chest pain.^[17]

History Taking key points		
Pain	Onset Location Characteristic Duration Precipitating factor Aggravating factor Relieving factor	Usually acute or insidious Well-localized Non-squeezing, reproducible May become chronic By posture or movement
History of acute or repeated excessive activity		
Recent or remote trauma		
Physical examination key points		
<ul style="list-style-type: none"> ❖ Thorough systematic examination of anterior and posterior chest walls for <ul style="list-style-type: none"> ➤ Swelling ➤ Erythema ➤ Heat ➤ Tenderness ❖ Neurologic examination to rule out compressions of nerve roots originating in lower cervical or thoracic segments of the spinal cord <ul style="list-style-type: none"> ➤ Sensory disturbances ➤ Muscular strength ➤ Peripheral reflexes of upper and lower extremities 		

Discussion

On physical examination, the patient with this syndrome usually has a normal finding. Careful auscultation of heart sound is necessary to excluded structural or valvular abnormality is neither local tenderness nor abnormal findings around the chest ^[16]. Rarely, there may be underlying structural abnormalities such as an atrial septal defect, aortic stenosis, and pulmonary valve stenosis in some affected children ^[14]. In adults with chronic presentation of this syndrome, the A-MUPS score can be considered to differentiate patients with somatic symptom disorder from this disorder ^[18]. However, in patients with chronic presentation, other organic causes must be thoroughly excluded to avoid misdiagnosis.

Echocardiography should be done to exclude potential cause of chest pain in the young, such as hypertrophic cardiomyopathy, aortic stenosis, or mitral valve prolapse. Exercise stress test should reveal negative ischemic response to exclude coronary cause, as familial homozygous hypercholesterolemia may induce premature coronary artery disease in the early age. In several case, cardiac CT scan can be used to exclude anomalous coronary artery origin.

Differentiating from other causes of chest pain

Due to the similar presenting symptoms, precordial catch syndrome can resemble other acute chest pain etiology, especially non-cardiac origin pain. Furthermore, other potentially serious chest pain

aetiology should be ruled out convincingly to avoid misdiagnosis. Typical angina, as found in coronary artery disease, is rarely found in children but could present in uncorrected congenital heart disease, inflammatory causes of coronary stenosis and valve obstruction.^[3]

Musculoskeletal abnormality is by far the most encountered in clinical practice, roughly ranging from 50-88% ^[19]. Mondor's disease or Mondor's syndrome is defined as subcutaneous nodule-like induration primarily found on the chest wall. However, it could be found in the axilla, abdominal and penile. This condition results from occlusion of superficial vessels which arise as palpable induration (i.e. nodule). The nodule is accompanied by skin redness, and discomfort, especially during movement.^[20]

Another entity so-called 'Tietze syndrome' which involves costochondral joint inflammation without a suppurative process may present with a similar presentation as PCS. In this condition, the second or third sternocostal junction is the most commonly affected, although the sternoclavicular joint could also be involved. It is characterized as tenderness, pain and/or edema following presentation, in the anterior chest wall. As its inflammatory nature, elevated erythrocyte sedimentation rate (ESR), C-reactive protein (CRP) and leukocytosis may be observed, which is not found in PCS. Another entity similar to Tietze syndrome is costochondritis, which

shares similar symptoms but usually no apparent tissue swelling ^[21]. It is more commonly found and may involve multiple and unilateral costochondral junctions.^[17]

Slipping rib syndrome occurs when the fibrous attachment of the ribs suddenly ruptures, which results in the slipping of the costae and compressing intercostal nerves. Children are more commonly affected and there may be a subtle history of trauma. The onset of chest pain is usually insidious, severe and sharp, similar to that of PCS.^[17]

The psychiatric disorder could occasionally present with acute chest pain, following psychogenic episodes such as panic attacks. It accounts for 10 to 30% of all chest pain cases. A precise history taking to identify specific precipitating stressors during history taking is vital, particularly in adolescent patients.^[19]

Management

There is usually no specific measure in treating precordial catch syndrome. Reassurance of its benign course might be the only management necessary ^[7]. Miller described the pain and discomfort usually subsided following deep inspiration. Therefore, patients should be taught the technique of forced deep inspiration which may relieve the pain ^[9]. Changing posture, chest massage or alternating the respirations between

deep and shallow may also bring relief [10]. Analgesic such as NSAIDs can be prescribed as symptomatic relief for the patient.

Outside activities such as the cubs, scout, or ballet classes should be encouraged to divert attention from the heart, rather than sitting indoors watching television. Discharge from a cardiac clinic or outpatient follow-up should be carried out whenever possible. One can always write to the family doctor asking him to refer the patient back if the pain changes in any way.[10]

Pediatric Considerations

Pediatricians report that precordial catch syndrome (PCS) is responsible for 80% to 90% of chest pain cases once chest trauma is ruled out. The typical pain history can often identify PCS, reducing the need for further tests or referrals. Once diagnosed, PCS usually doesn't require additional testing and can be managed with simple measures. This article aims to raise awareness among primary care physicians to help them recognize PCS in pediatric patients.[22]

Although a pediatric cardiology referral may provide reassurance to primary care and emergency department physicians, our results show that cardiac aetiologies for pediatric chest pain are very rare. Sert et al., in their study, concluded that precordial catch syndrome accounts for 15% of all chest pain presenting complaints to the department

of pediatrics, pediatric cardiology, and pediatric emergency.[23]

Conclusion

The precordial catch syndrome is frequently mentioned as part of a long differential diagnosis of chest pain especially in children. Precordial catch syndrome is characterized by sudden onset of sharp, stabbing, well-localized needle-like pain that is well localized in the precordial region. This syndrome deserves wider recognition because it is rarely discussed in the differential diagnosis of precordial pain. Pediatricians report that precordial catch accounts for 80% to 90% of chest pain once any chest trauma is excluded.

In general, this condition is self-limiting and does not require a specific therapeutic measure. This comprehensive review highlights the importance of recognizing this entity, particularly in normal or no comorbidity patients, as a differential diagnosis of chest discomfort.

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