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What do we know about Tietze's syndrome?

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Abstract

Tietze's syndrome is a benign, self-limiting arthropathy, without purulent character. The disease most often involves articulations: sternocostal, sternoclavicular, or costochondral joints. The characteristic symptoms are tenderness, pain and edema involving one of the aforementioned joints on one side. Diagnosis of Tietze's syndrome is based on physical examination (increase of palpation tenderness in the affected joint), laboratory tests (increase of inflammatory parameters) and imaging studies (USG, MRI). Differential diagnosis of Tietze's syndrome is based on exclusion of costal cartilage inflammation, coronary syndrome and inflammatory changes in the lung and pleura. Most commonly the treatment is conservative, in resistant cases surgical.

Key words: Tietze's syndrome, arthropathy, sternocostal articulation.

Streszczenie

Zespół Tietzego jest łagodną, samoograniczającą się artropatią, która nie ma ropnego charakteru. Choroba obejmuje najczęściej stawy mostkowo-żebrowe, mostkowo-obojczykowe lub połączenia części chrzęstnej i kostnej żeber. Charakterystycznymi objawami są: tkliwość uciskowa, ból i obrzęk obejmujące po jednej stronie któryś z wyżej wymienionych stawów. Diagnostyka zespołu Tietzego opiera się na badaniu fizykalnym (wzrost tkliwości palpacyjnej w obrębie zajętego stawu), badaniach laboratoryjnych (zwiększenie parametrów stanu zapalnego) i badaniach obrazowych (USG, MRI). W diagnostyce różnicowej zespołu Tietzego bierze się pod uwagę zapalenie chrząstek żebrowych, zespoły wieńcowe oraz zmiany zapalne w obrębie płuc i opłucnej. Najczęściej stosuje się zachowawcze metody leczenia, a w przypadkach opornych – metody zabiegowe.

Słowa kluczowe: zespół Tietzego, artropatia, staw mostkowo-żebrowy.

Tietze's syndrome is defined as non-purulent, mildly self-limiting arthropathy, characterized by tenderness, pain and edema (70–80%), involving articulations: sternocostal and/or sternoclavicular on one side, with no other symptoms [1–3]. This clinically individual disease unit is often confused with other painful conditions within the thoracic skeletal structures such as costochondritis, which is not accompanied by tissue swelling inside the sternocostal joint [2, 4, 5].

This syndrome of clinical symptoms was first described in 1921 by the German professor of surgery Alexander Tietze, who was an assistant to Jan Mikulicz-Radecki [6]. The etiopathogenesis of Tietze's syndrome remains poorly understood. It is believed that most commonly it is caused by micro-injuries and/or infection of the airways [7].

The symptoms of Tietze's syndrome are not characteristic and include point pain within the anterior half of the chest wall radiating to the shoulder and arm, exacerbated by sneezing, deep breathing and torsional movements of the torso. During the exacerbation of symptoms of Tietze's syndrome, additionally there was observed increased palpation tenderness within the occupied sternocostal joint, leukocytosis, C-reactive protein (CRP), erythrocyte sedimentation rate (ESR) and body temperature to 38°C [8]. Tietze's syndrome may be additionally accompanied by dermatological symptoms such as palm and plantar pustulosis and psoriasis [7].

In physical examination, in over 70% of patients one side of the thorax is swollen and there is noted palpable tenderness of the sternocostal joint, most often the second and/or third rib. It is recommended that during the physical examination, with a single finger, one should apply gentle pressure to the front, lateral and posterior chest wall in order to accurately locate the discomfort [9, 10].

Diagnosis of Tietze's syndrome is based on basic clinical trials that exclude other diseases, in particular costal cartilage inflammation (costochondritis), coronary syndromes and inflammatory changes in the lungs and pleura [11]. Costochondritis, also known as sternocostal syndrome, chondrodynia or front chest wall syndrome, is often confused with Tietze's syndrome. Significant differences between these two disease entities are presented in Table I [12].

Tietze's syndrome is a relatively rare disease and it is advisable to perform additional imaging tests to correct-

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Table I. Comparison between costochondritis and Tietze's syndrome

Characteristics	Costochondritis	Tietze's syndrome
Signs of inflammation	Absent	Present
Swelling	Absent	Presence or absence indicates severity of problem
Joints affected	Multiple and unilateral > 90%. Usually second to fifth costochondral junctions involved	Usually single and unilateral. Usually second and third costochondral junctions involved
Prevalence	Relatively common	Uncommon
Age group affected	All age groups, including adolescents and elderly	Common in younger age group
Nature of pain	Aching, sharp, pressure like	Aching, sharp, stabbing initially, later persists as dull aching
Onset of pain	Repetitive physical activity provokes pain, rarely occurs at rest	New vigorous physical activity such as excessive cough or vomiting, chest impact
Aggravation of pain	Movements of upper body, deep breathing, exertional activities	Movements
Association with other conditions	Seronegative arthropathies, anginal pain	No known association
Diagnosis	Crowing rooster maneuver and other physical examination findings	Physical examination, exclude rheumatoid arthritis, pyogenic arthritis
Imaging studies	Chest radiograph, computed tomography scan, or nuclear bone scan to rule out infections or neoplasms if clinically suspected	Bone scintigraphy and ultrasonography can be used for screening for other conditions
Treatment	Reassurance, pain control, nonsteroidal antiinflammatory drugs, application of local heat and ice compresses, manual therapy with stretching exercises. Corticosteroid or sulfasalazine injections in refractory patients	Reassurance, pain control with nonsteroidal antiinflammatory drugs, and application of local heat. Corticosteroid and lidocaine injections to the cartilage, or intercostal nerve block in refractory patients

ly diagnose it. Ultrasound imaging is the most common method, which shows swelling of soft tissues at the site of the ongoing inflammatory process. In turn, the nuclear magnetic resonance (NMR) very accurately shows inflammatory changes in the surrounding fat tissue along with bone marrow edema causing compression and close adherence of the joint surfaces forming the articulation. There are no destructive changes in cartilage and bone. Another recommended method is skeletal scintigraphy using technetium-99 or radioactive gallium. The above studies allow for differentiation between Tietze's syndrome and costochondritis in which significant inflammatory changes within the rib structure are evident [13–15].

So far there are no clinical trials in the literature discussing the methods of treatment of Tietze's syndrome. Particularly, conservative methods of treatment are used, which include pain management using analgesics and nonsteroidal anti-inflammatory drugs. In rare cases resistant to the above-mentioned pharmacological methods, the site of the pain can be injected with a solution of lignocaine in combination with a steroid. Warming wraps for the painful place are also recommended. In individual cases, resection of the cartilage has been described. A few-week limitation of physical activity is also recommended. Treatment with the aforementioned methods should be continued until the pain is completely resolved. On average, the symptoms disappear after 1–2 weeks of such treatment. In rare cases, the pain may remain chronic [3, 12, 13].

Table II. Costochondritis and Tietze's syndrome summary

Feature	Costochondritis	Tietze's syndrome
Prevalence	More common	Rare
Age	Older than 40 years	Younger than 40 years
Number of sites affected	More than one (in 90% percent of patients)	One (in 70% of patients)
Costochondral junctions most commonly affected	Second to fifth	Second and third
Local swelling	Absent	Present

In conclusion, it should be emphasized that Tietze's syndrome is a relatively rare disorder most commonly seen in young people (up to 35 years of age). Typically, in about 70% of cases it appears only on one side of the chest and most often affects the attachment of 2 and/or 3 ribs to the sternum. In Tietze's syndrome painful swelling of this area is always found, which allows for the differentiation of this disease entity from costochondritis. The most frequently reported differences are presented in Table II [16].

In patients over 35 years of age reporting chest pain, a history of coronary heart disease and/or cardiorespiratory disease prior to diagnosing Tietze's syndrome, it is standard to perform ECG and chest X-ray to exclude them [16].

Disclosure

The authors report no conflict of interest.

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