J Anesth (1997) 11:225–227

Journal of
Anesthesia

Clinical reports

Stellate ganglion block therapy for a patient with Tietze's syndrome

Susumu Tamakawa[1], Junko Tsujimoto[1], Akemi Iharada[1], and Hidemichi Ogawa[2]

[1] Department of Anesthesiology, Rumoi Municipal Hospital, 1 Kotobuki-cho, Rumoi, Hokkaido 077, Japan
[2] Department of Anesthesiology and Critical Care Medicine, Asahikawa Medical College, 4-5-3-11 Nishikagura, Asahikawa 078, Japan

Key words: Tietze's Syndrome, Stellate ganglion block therapy, Pain

Introduction

Tietze's syndrome is a costochondritis and a clinical constellation associated with pain, tenderness, and swelling at the costal cartilage [1,2]. The pain persists for more than 1 year in half the patients [3,4]. We treated a patient with Tietze's syndrome by stellate ganglion block (SGB) therapy and achieved a good outcome.

Case report

A 45-year-old woman came to our clinic because of chest wall pain. It was 6 years earlier when she first felt slight chest pain. The pain was in the infraclavicular region and ran to the left arm when pressure was applied. When the pain increased, she felt not only left upper chest pain but also paresthesia and weakness of the left arm. Physicians noted costal cartilage tenderness, but did not note swelling or flush over the skin. Laboratory studies revealed a white blood cell count to be 7000 mm^{-3} and the concentration of C-reactive protein to be under 0.5 $mg \cdot dl^{-1}$. Computed tomography (CT) showed swelling of the first left costal cartilage. Radionuclide imaging with ^{67}Ga showed inflammation of the left first costochondral junction. A non steroid anti-inflammatory drug (NSAID) dichlorfenac natrium was given but her pain was not reduced.

When she came to our clinic, the pain severely affected her breathing; her pain score (PS) using a visual analog scale was 10, which was full-scale. We noted tenderness; however, there was no swelling, local heat, or erythema in the left infraclavicular region. Roentgenograms of the chest were negative. Sonography showed swelling of the left first costochondral junction (Fig. 1). Infused betamethasone, 4 mg, with 5 ml of 0.25% bupivacaine into the painful area reduced the pain for 1 day (PS2), but bupivacaine alone reduced the pain for only 2 h. We performed SGB therapy with 5 ml of mepivacaine infused at the transverse process of the 7th cervical vertebra. The first SGB reduced the pain for 6 h (PS3). The 5th SGB enabled her to sleep well. She came once a week to have SGB performed and took NSAIDs only in the morning; her pain remains, but at a tolerable level of 3 on the 10-point scale.

Discussion

Costochondritis is a common but poorly understood condition among patients with chest wall pain. Disla et al. [3] reported that 30% of consecutive patients with chest pain had costochondritis. Tietze's syndrome is a closely related variant of costochondritis and a clinical constellation associated with pain, tenderness, and swelling at the upper costal cartilage [2]. Tietze's syndrome is linked to a variety of causes, including bacterial infection [5], cancer [6], and trauma [7]. Our present patient had pain and tenderness, but no swelling. It was difficult to find the swelling of the first costal cartilage because it was behind the clavicle. The white blood cell count and the concentration of C-reactive protein were within normal range because the extent of inflammation was limited.

Address correspondence to: S. Tamakawa, Department of Anesthesia, Asahikawa Kosei Hospital, 1-24, Asahikawa 078, Japan
Received for publication on June 24, 1996; accepted on February 21, 1997

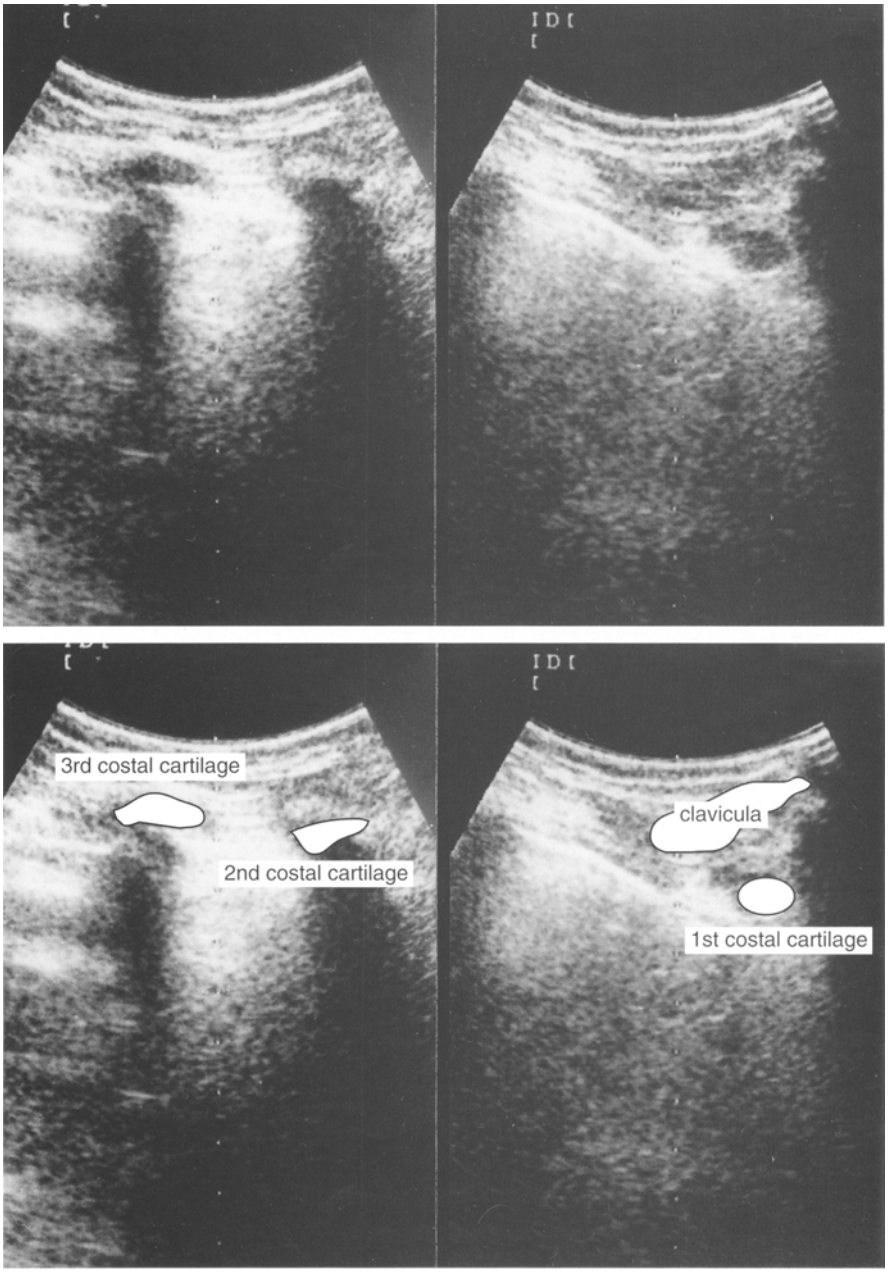

Fig. 1. Sonography of left first, second, and third costal cartilage. The first costal cartilage has enlarged and swollen into a circle

CT is useful for excluding a mass when clinical findings suggest its presence [8], but the cartilage connection can scarcely be identified with CT because of the partial volume averaging effect and nearly vertical direction of the connection portion relative to the scan plane [6]. Magnetic resonance imaging (MRI) is also difficult because the chest wall moves during breathing. Bone radionuclide imaging (RI) shows nonspecific inflammation [5]. Sonography is easy to use, noninvensive, and clearly images cartilage; hence it is more useful for examining the costal cartilage than CT, MRI, or RI [6]. Using sonography, Choi et al. [6] showed focal marginal blurring of the costal cartilage in a painful area. In our case, we could observe enlarged and circled costal cartilage although we did not note marginal blurring. Disla et al. [3] reported that tenderness disappeared in two-thirds of their patients by 1 year after first diagnosis. Our patient spent 6 years suffering from chest pain, so we believed our sonographic findings resulted from prolonged inflammation of the cartilage.

There is no specific treatment for Tietze's syndrome [1]. NSAIDs are given to control the pain [2], but the pain often persists for many years and side effects of NSAIDs sometimes appear. Our patient complained of stomach-ache after taking NSAIDs. Burch et al. [2] sug-

gested that steroids and intercostal nerve block with procaine are warranted for the temporary relief of pain. We performed SGB therapy.

The stellate ganglion receives neural input from the paravertebral sympathetic chain and sends sympathetic efferent to the cervical trunks of the brachial plexus. The infraclavicular region is a dominant area of stellate ganglion. The uninterrupted pain stimulates sympathetic activity, causing the painful area to fall into ischemia and increasing the pain. We considered that SGB therapy relieved the ischemic state, and a rich blood flow suppressed inflammation. For these reasons, SGB therapy may be effective for pain control in Tietze's syndrome, because Tietze's syndrome is a form of chondritis.

References

1. Kayser HL (1956) Tietze's syndrome. A review of the literature. Am J Med 21:982–989
2. Burch GE, De Pasquale NR (1964) Tietze's disease. Geriatrics 19:61–66
3. Disla E, Rhim HR, Reddy A, Karten I, Taranta A (1994) Costochondritis. A prospective analysis in an emergency department setting. Arch Intern Med 154:2466–2469
4. Brown RT, Jamil K (1993) Costochondritis in adolescents. A follow-up study. Clin Pediatr 32:499–500
5. Massie JD, Sebes JI, Cowles SJ (1993) Bone scintigraphy and costochondritis. J Thorac Imaging 8:137–142
6. Choi YW, Im JG, Song CS, Lee JS (1995) Sonography of the costal cartilage: normal anatomy and preliminary clinical application. J Clin Ultrasound 23:243–250
7. Kleinman I (1992) Beeper costochondritis. JAMA 267:56
8. Edelstein G, Levitt RG, Slaker DP, Murphy WA (1984) Computed tomography of Tietze syndrome. J Comput Assist Tomogr 8:20–23