Segmental Reflex Sympathetic Dystrophy Syndrome

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✔ Reflex sympathetic dystrophy syndrome (RSDS) affects the distal part of the extremity involving the entire hand or foot, but rarely found in a segmental nature. We present a patient with RSDS localized to the anatomical segment of radial nerve. By this mean, we discussed the scintigraphic findings and possible mechanism of this disorder.

Key words: Reflex sympathetic dystrophy, Technetium TC 99M medronate, radial nerve.

✔ Refleks sempatik distrofi sendromu (RSDS), tüm el veya ayağı kapsayacak şekilde ekstremitenin distal kısmını etkiler. Ancak, ender olarak segmental tutulum gösteren olgular da görülmektedir. Radial sinirin anatomik segmentiyle uyumlu olan refleks sempatik distrofi sendromlu olgumuz nedeniyle RSDS'nin sintigrafik bulguları ve olası mekanizması tartışılmıştır.

Anahtar Kelimeler: Refleks sempatik distrofi, Technetium TC 99M medronate, radial sinir.

The classic features of the Reflex Sympathetic Dystrophy Syndrome (RSDS), usually in a distal extremity, consist of pain,tenderness, signs and symptoms of vasomotor instability, trophic skin changes and swelling[1]. A specific precipitant cannot be found in up to 35% of cases, but RSDS can usually be followed by a trauma, diseases such as myocardial infarction, cervical osteoarthritis, central nervous system abnormalities and neuropathy[2,3]. The typical radiological finding is patchy demineralization but this finding is not sensitive nor specific for RSDS[3]. Three Phase Bone Scanning (TPBS) reveals increased radionuclide activity and is more sensitive and specific than x-ray graphy.

CASE REPORT

A 60 year-old woman whose right hand was immobilized for colles fracture for 6 weeks, was applied to the hospital 12 weeks after this trauma with the complaints of pain, swelling, tenderness and stiffness in the right half of her right hand. In physical examination, there were erythema, hyperesthesia and edema in her right wrist, 1., 2. and 3. metacarpophalyngeal (MCP) regions and digits. Spontaneous and provocative pain and limitation of active and passive range of motion in her right wrist, 1., 2. and 3. MCP and interphalyngeal (IP) joints were present. Electromyography revealed axonal degeneration of radial nerve. Bone scanning was performed with a gamma camera equipped with a low energy general purpose collimator, using Tc-99m methylene diphosphonate (MDP). After the injection of 740 MBq of radionuclide, 3-hour delayed static images were obtained. Scans were interpreted visually. Increased osteoblastic activity was present in the periarticular regions of the wrist, 1., 2. and 3. MCP and IP joints of the right hand (Fig 1).

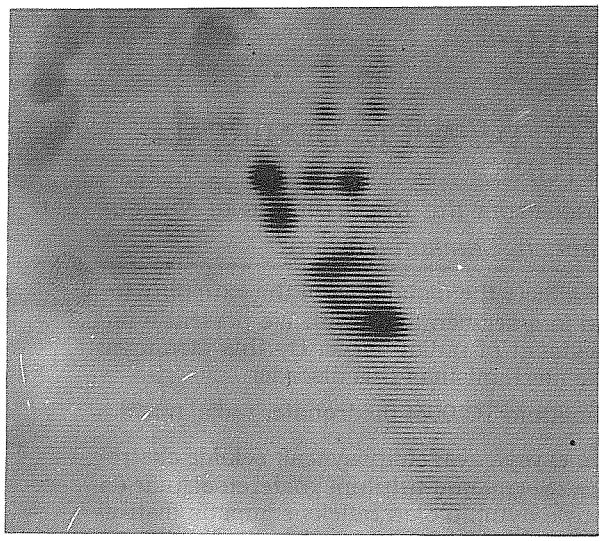

Figure-1 :Segmental Reflex Sympathetic Dystrophy Syndrome.

DISCUSSION

Although RSDS most commonly affects the entire hand or foot, there are some reported cases of RSDS involving a single nerve and the anatomical segment of this nerve and is called "Segmental RSDS" as described by Helms et al.. Autonomic nervous system dysfunction is generally accused in the generation of the clinical manifestations of this disorder[4]. The mechanism possibly involves changes in the peripheral nerve itself or in the medulla spinalis. The sympathetic efferent fibers themselves may also stimulate a partially injured nerve through noradrenaline release. These sympathetic efferent fibers may also influence the release of the chemical mediators. Prostaglandins are released at the site of injury or with the exitation of nociceptors. These hormones potentiate the pain mediators and also have effects on the inflammatory process and bone metabolism[5]. Clinical criterias of this disorder which were described by Kozin et al. were present in our case. TPBS is a valuable examination in the diagnosis of RSDS. TPBS present increased blood flow, blood pool and osteoblastic activity at 0–20 weeks after the onset of symptoms. At 20–60 weeks blood flow and blood pool are normalized, but increased osteoblastic activity is still present. In the later period between 60–100 weeks blood flow and blood pool are reduced and the osteoblastic activity is normalized[6]. Among these three phases of scintigraphy, the third phase is the most sensitive and specific phase with 98% sensitivity and 97% specificity[5].

CONCLUSION

We have presented the clinical and scintigraphic findings of a case with RSDS, involving the area which is innervated by the radial nerve. In some cases segmental RSDS may affect only one digit too. Therefore RSDS has to be considered in the differential diagnosis of painful digital swelling.

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