

Calcification of the soft tissue of the hands following collagen injection: a case report

Abstract

Calcification (deposits of calcium phosphate) or calcinosis may occur in many different soft tissues including the soft tissues of the hands. It occurs in a variety of local and systemic conditions. Calcification can be the body protective response to injury, as well as a part of natural inflammatory reaction to infection, trauma, tumour, or autoimmune disorders. In our case calcification of the soft tissues of both hands occurred 2 years after injection of collagen into the webspaces of the hands. The primary symptom was only a morning stiffness without swelling of the small joints or any other large joints. The onset was insidiously and was not associated with pain. All laboratory parameters did not show any inflammation or an association of an autoimmune diseases. The calcification appeared in both hands as a late inflammatory reaction to the injection of collagen which may mimic those seen in patients with scleroderma or dermatomyositis. The treatment of such cases should be symptomatic with NSAIDs and patient assurance. Calcification as a result of collagen injection should be considered in the differential diagnosis in autoimmune diseases which associated with calcification of the soft tissues

Volume 5 Issue 1 - 2016

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Received: March 14, 2016 | **Published:** May 24, 2016

Case description

51 years old female, weight 103 kg and height 1.55 mt, presented to our clinic complaining of pain and stiffness of both knees and small joints of the hands. The morning stiffness period was 5-10 minutes. There was no history of swelling. She was complaining also of neck pain, no headache, no dizziness, no blurring of vision or radiation of pain. There was no history of fever, difficulty of swallowing. No history of weight loss or change appetite. No bladder or rectal disturbances. No history of skin rashes or sun sensitivity. No Raynauds phenomenon or digital skin ulcers. No allergy. No family history of rheumatic diseases. Arthroscopy of the right knee was carried out 7 months ago. Due to the feeling that the web spaces on the dorsum of the hand were empty, a cosmetic operation was done and a collagen was injected into the 2nd -4th web spaces of both hands 2 years ago. Examination of both hands revealed tenderness over the proximal- and the distal- interphalangeal joints. No swelling. Free range of motion. Fist was full. No neurological or vascular signs. Skin was intact and of normal elasticity. Both shoulders were free. Clinical examination of both knees revealed tenderness over the medial joint line but no meniscus sign, retropatellar friction pain. No effusion. The range of motion of both knees was free. Examination of the cervical spines showed spasm of the paraspinal muscles. tenderness over the spinous process of the lower cervical spines. Dorsiflexion and right rotation were painful but no radiation. All laboratory investigations including ANAs, Anti-lupus antibodies, RF, CCP, cardiolipin IGG, IGM, T3, T4, calcium, phosphorus uric acid and 25-hydroxyvitamin D were within normal range. Only cholesterol was elevated 250mg/dl (normal range 200-240).

The radiological studies of the cervical spines showed degenerative changes of the facet joints and spondylotic changes of C4C5, C5C6. No erosion or calcification. Varus osteoarthritic changes of both knees.

The radiological studies of both hands (Figure 1) revealed clumps of calcification of the soft tissues suggesting a connective tissue disorder. The calcification extended to involve the subcutaneous tissue which can be seen on the lateral view. A periosteal reaction as a part of

the inflammatory process also can be seen at the medial border of the 5th metacarpal bone. X-ray of both feet did not reflect any bony changes. Only a mild hallux valgus deformity.

Discussion

A Calcification can be classified into metastatic calcification and dystrophic calcification. Metastatic calcification occurs in hypercalcemic states and are found in kidney, lung, brain, eyes, skin, subcutaneous and periarticular tissues and arterial wall. Such types of calcinosis is usually related to other underlying conditions, such as hyperparathyroidism, hypoparathyroidism or renal diseases.¹⁻³ Tumoral calcinosis is included in this category, however, it is separated from other forms of metastatic calcification because there are no internal organs involved. This condition is characterized by the rapid development of a large, multi-lobulated, calcific masses in the subcutaneous tissue and muscles surrounding the hips, shoulders, elbows, hands, and chest walls. Dystrophic calcification seen in patients who have calcium deposits in the soft tissues but have no generalized disturbances in calcium or phosphorus metabolism. It is often seen at sites of previous inflammation or damage to the skin. Calcinosis has been associated with connective tissue disease, such as in systemic sclerosis (scleroderma) or polymyositis-dermatomyositis.⁴ Usually this group of patients have other symptoms that can guide to the diagnosis and confirmed by the abnormal laboratory results. Our case did not have any symptoms other than the history of morning stiffness which last for 5-10 minutes and her laboratory investigations did not show any positive results.

Calcification often produces no symptoms, instead, calcification is most frequently discovered on X-ray. Calcium phosphate crystals have a remarkable tendency to aggregate into snowball-like clumps and are invariably associated with articular collagens. Collagens are fibrous, insoluble proteins found in the connective tissues including bones, skin, cartilage and ligaments. This has been shown in our case where the calcium phosphate react with injectable collagen and appeared as aggregates and clumps of calcification around the soft tissues of both hands. Despite the fact that the small joints of the hands were not affected, the morning stiffness of both hands may be attributed to this iatrogenic calcification of collagen. The treatment of such case should

be symptomatic using nonsteroidal anti-inflammatory drugs and patient reassurance.

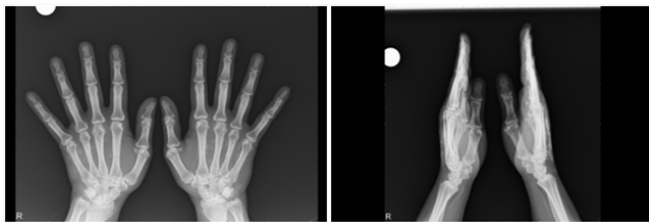


Figure 1 X-ray of both hands of 51 years old woman showing calcification of the soft tissues 5 years after injection of collagen into the web spaces.

Conclusion

The use of collagen injection for cosmetic purposes could cause iatrogenic calcification of the soft tissues mimic those seen in autoimmune diseases like scleroderma or dermatomyositis and systemic lupus erythematosus.⁵⁻⁶ The history of cosmetic surgeries using collagen which became very common specially in females should be assessed. The appearance of calcification at the site of collagen injection as a late sequelae of inflammatory reaction should be taken into consideration as a differential diagnosis in cases of calcification that can be seen on X-ray.

Acknowledgments

None.

Conflicts of interest

None.

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