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Parenteral pentazocine abuse leading to muscle abnormality: A case report

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ABSTRACT

The injection of drug of abuse into muscle tissue leads to myositis, pain and ultimately fibrosis, atrophy and may be contracture of the specific muscle/s. Cases reporting the muscular side effects of intra venous (IV) drug abuse are few and this particular complication of drug abuse is not very well documented. We report a patient with myositis leading to atrophy of the shoulder muscles and following this the patient developed limitation of movements.

Keywords: Pentazocine abuse; myositis; contracture; movement restriction

Parenteral drug abuse has wide spread ramifications like indurations of skin, ulcerations, skin popping, thrombophlebitis, and the other systemic complications [1]. Drug abuse is a major public health problem among younger population [2]. The injection of drug of abuse into muscle tissue leads to myositis, pain and ultimately fibrosis, atrophy and may be contracture of the specific muscle/s [3,4]. Deltoid contracture causes a fixed abducted posture, rightly called as 'arm levitation sign', indicating chronic injection myopathy [5]. Cases reporting the muscular side effects of IV drug abuse are few and this particular complication of drug abuse is not very well documented [4]. The atrophy of muscles leading to limitations in movement is still rare. We report a patient with myositis leading to atrophy of the shoulder muscles and following this the patient developed limitation of movements.

CASE REPORT

Mr. X, a young married educated upto primary level class III, employee in the government sector presented to the de-addiction outpatient services of a tertiary care hospital, with complaints of using injectable pentazocine for the past 2 years. The patient reported to having used the injections for headache (this was suggested by his friend), and he felt relief on using the injection. Initially, he would use it once in a week or fortnight; however within three months, he started using it once to twice a week. In a six month period, he started taking it daily. Within a year he started indiscriminate and two times to three times a day use of the drug. The patient would randomly inject the drug in the arm, elbow, and rarely in the legs. The patient took care not to share needles; however, he did not make efforts to find a vein for injection.

About a year back, patient noticed that he had severe pain after injection in shoulder and following the injection, he developed restriction of movement of the shoulder joint. He developed swelling with tenderness at the shoulder joint and there was induration at the injection site. The induration subsequently resolved; however, the pain and restriction in mobility persisted. Gradually the patient

and his family members notice that the shoulder joint was losing the contour of roundedness and was flattening. The patient continued to inject indiscriminately with subsequent worsening in the movement, contour and pain.

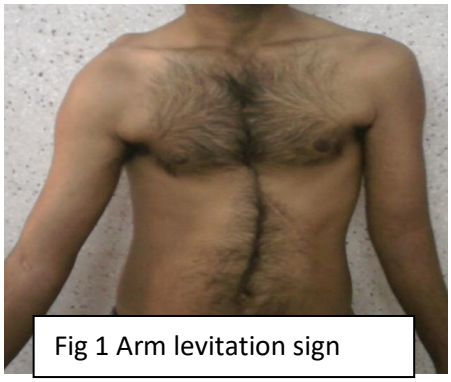

Fig 1 Arm levitation sign

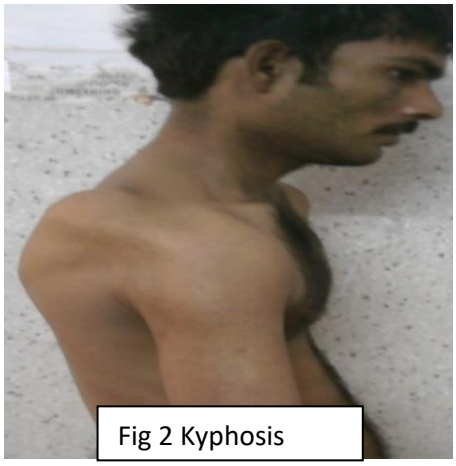

Fig 2 Kyphosis

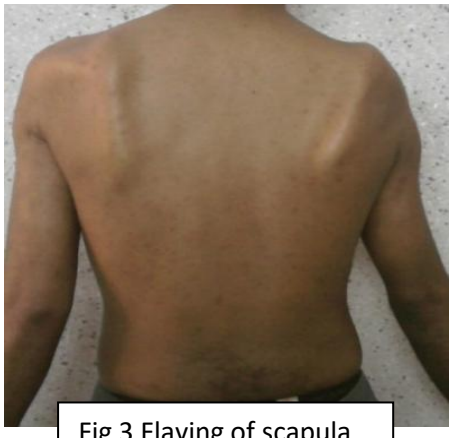

Fig 3 Flaying of scapula

The patient was taken to the orthopaedic department where examination revealed that he had developed deltoid muscle atrophy along with the frozen shoulder and the cause was ascertained as pentazocine abuse for which he was referred to the de-addiction clinic. The patient did not complaint of any gross muscle weakness. The limitation of movements was compensated by using the other muscles around the shoulder joint. He was a normotensive non diabetic individual. Family history was non contributory, the family support was good.

Fig 4 frozen shoulders

Physical examination revealed a thin-built man (48 kg) with marked contractures involving the shoulder joint and loss of bulk of the shoulder joint and mild limitation of abduction of right shoulder and marked woody indurations of the deltoids. Both elbows were semi-flexed with a restricted range of movement on either side. Muscle power was normal within the limited range of movements, and there was no sensory deficit.

The routine biochemical tests like haemoglobin, complete blood count, blood sugar, kidney and liver function test along with the hepatitis B and HIV tests and routine urine examinations were within normal limit. The CPK levels were marginally raised. The tests are a part of routine screening in drug abuse patients. A routine chest X-ray along with the shoulder joint X-ray was done in the orthopaedics department. The chest X-ray was normal. We suggested a muscle biopsy and a muscular electro physiological study for which the patient was referred to the neurology department.

The patient was treated for the drug addiction. Rehabilitation by physiotherapy and harm reduction was instituted. The patient did not agree for the muscle test and did not give consent for the muscle biopsy. For the de addiction he was regular in follow up and in two months was off addiction. He was prescribed opioid antagonist along with nutritional supplements. He continues to be addiction free after six months; however the muscle bulk has not improved, but there is some improvement in the movement of the shoulder joint.

DISCUSSION

Superficial skin complications of parenteral drug abuse have been described by many authors Schlicher et al.[1] Swanson et al [6], noted a 33% incidence of brawny induration of skin and underlying tissue. Case reports and case series [7] have discussed the issues of cutaneous complications with pentazocine, there are few case reports [4] and case series [9] discussing the same from India and a few discussing about myopathy and fibrosis [4]. The list of complications was later extended by Joong et al [3] who described a fibrous myopathy with intramuscular pentazocine injections. The patients described by them had woody induration of muscles with secondary contractures. Contractures of Deltoid muscle cause a fixed abducted posture, which is named 'arm levitation sign', a signal of chronic injection myopathy [5]. The history of progressive decline in mobility with generalised stiffness in the index patient may appear to be a joint disease [9] (my patient was referred by the orthopaedic specialist). However, the extensive induration of soft tissue with resultant contractures and normal radiographic studies point to the non orthopaedic nature of his deformity [10]. A classical 'arm levitation' sign was lacking, but somewhat related picture was seen (Fig. 1). Frozen shoulder has also been mentioned to be an associated feature which was present in my patient [9] (Fig 4). Flaying of scapula (Fig 3), along with the kyphosis was also visible in our subject. On the contrary, case reports have mentioned the presence of lordosis in such individuals [4].

The history of chronic pentazocine injection in conjunction with the typical muscular involvement gives an indication of this condition. An EMG and biopsy would be highly helpful to arrive at the diagnosis; marginally raised creatine kinase should be viewed with suspicion. The mechanism of this condition is thought to be the result of Pentazocine which is most soluble under acidic conditions, and precipitation in the alkaline pH of extracellular tissue with secondary inflammation may be causative [9,10]. Repeated injections of other medications are not commonly reported to result in diffuse muscle fibrosis. Formations of crystals have been noted in the area of induration [9]. The role of repeated muscle trauma, microhaemorrhages, and infections can also be contributory [5]. Elevations of muscle enzymes, as seen in my patient is suggestive of ongoing muscle destruction, however the elevation was not marked. Animal studies utilising repeated injections of pentazocine show induction of localised sclerosis in guinea pigs but not in rats [3]. Pentazocine-induced fibrous myopathy should be kept in mind when a parenteral narcotic agent is required for management of chronic pain.

CONCLUSION

Pain management requires alertness on the part of physicians, and indiscriminate selling of dependence producing drugs should be banned. A good liaison among doctors is needed to help patients with multiple involvements.

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