Case Report

Shadow cast upon sclerosing potential of pentazocine, exploitation by paramedics; A relation between pentazocine and Pseudo-scleroderma: A case report

Ravikumar S Tapdia[1], Aishwarya Gaikwad[2*], Arpita Deshpande[3], Sohel Jamadar[4]

[1]Assistant Professor, [2,3]Junior Resident, Department of Dermatology, [4]Junior Resident, Department of Orthopaedics, MIMSR Medical College Latur, INDIA.
Email: aishwaryagaikwad310@gmail.com

Abstract

Background: Prescription drug abuse is a major health problem across the globe. Various drugs, such as analgesics, cough syrups, vitamin preparations and laxatives are being used by individuals for reasons other than the medical indication. Pentazocine, a non-narcotic analgesic, though has no addictive potential but abused frequently via parenteral route for its psychological dependence.
Key Word: pentazocine, Pseudo-scleroderma.

***Address for Correspondence:**
Dr Aishwarya Gaikwad, Junior Resident, Department of Dermatology, MIMSR Medical College, Latur, Maharashtra, INDIA.
Email: aishwaryagaikwad310@gmail.com
Received Date: 25/10/2022 Revised Date: 5/11/2022 Accepted Date: 1/12/2022

Access this article online

Quick Response Code:

Website: www.medpulse.in

DOI: https://doi.org/10.26611/10212411

INTRODUCTION

Prescription drug abuse is a major health problem across the globe. Various drugs, such as analgesics, cough syrups, vitamin preparations and laxatives among others, are being used by individuals for reasons other than the medical indication.[1] Pentazocine, a non-narcotic analgesic, though has no addictive potential but abused frequently via parenteral route for its psychological dependence. The addictive nature of pentazocine has led to its opioid use disorder which occurred more among middle-aged, men, majority of those affected were health workers. The etiology of pentazocine abuse has been linked to chronic painful medical conditions and cutaneous manifestations.[2,3] Systemic sclerosis (SSc) or scleroderma is a rare autoimmune connective tissue disorder whose features include fibrosis of skin, obliterative vasculopathy, and autoimmunity.[4] Systemic sclerosis, may be triggered by environmental exposure to several agents like silica dust, organic solvents and drugs [appetite suppressants, carbidopa, bleomycin, pentazocin, cocaine abuse].[5] There are few reports of myopathy following chronic pentazocine administration. The myogenic contractures due to parenteral use of narcotics are rare clinical presentation, and intramuscular use is associated with cutaneous manifestations of pentazocine such as irregular shaped, deep ulcers with black eschars, surrounding induration, halo of hyperpigmentation, ulcers/ nodules/scars along superficial veins, woody induration, needle pricks/ thrombophlebitis, puffy-hand syndrome.[6,7] We report a rare case of pentazocine abuse leading to pseudo-scleroderma lesions.

CASE REPORT

Patient was 46-year-old right-handed man, widower in the last 5 years having 2 children, lab technician by occupation brought by his mother, admitted with complaints of pain

How to cite this article: Ravikumar S Tapdia, Aishwarya Gaikwad, Arpita Deshpande, Sohel Jamadar. Shadow cast upon sclerosing potential of pentazocine, exploitation by paramedics; A relation between pentazocine and Pseudo-scleroderma: A case report. *MedPulse International Journal of Medicine.* October 2022; 24(1): 01-04. https://www.medpulse.in/Medicine/

and stiffness, gradually progressive over both hip and knee joints since past 7 years. 20 years back, patient had left tibia shaft fracture treated conservatively. As patient was lab technician, he knew the drug pentazocine and its analgesic action, patient had started taking injection pentazocine intramuscularly daily 1 ampoule for 2 years against medical advice. He gradually increased dose up to 3-4 ampoules daily for 10 years. As patient tried to decrease the dose, he started experiencing withdrawal features 5-6 hours after the last dose in the form of severe body aches, restlessness, anxiety and intense craving. Within two years, papulonodular lesions developed at the site of injection which were spontaneously ruptured over 2-3 days leaving painless ulcers of approximately 1×1 cm in size. On healing the ulcers, depressed scars were left behind. Then after 3 years he developed abscesses over injection sites, on healing depressed scars were left behind. He stopped the drug on his own 10 years back by replacing pentazocine with diazepam and non-steroidal anti-inflammatory drugs over a period of 3-4 months without any withdrawal symptoms. There was complete abstinence for 7 years. No signs of any mood disorder or psychosis were observed. Initially there was significant impairment of his daily activities such as walking which were gradually progressed and persistent. He had short-stepping gait with significant disability. The progression of impairment was to the extent that he was not able to get up from bed by his own, stand or walk. And then there was permanent stiffness and pain in both the knee and hip joints. On physical examination patient was a thin built man with moderate general condition. He had skin changes over lower limbs since last 6-7 years. He had dry scaly, brown or woody colored skin over both lower limb, multiple depressed scars which are oval and atrophic, diffuse hyperpigmentation over both lower limbs. Diffuse swelling was present over both the lower limbs with tenderness and local rise of temperature over both knee and hip joints. Range of movement at hip and knee joints was restricted. On radiological examination, calcific deposition in soft tissues like muscles and subcutaneous tissue with degenerative changes in the both hip joints with resorption of head of right femur. On histopathological examination, thickened sclerotic collagen extending from mid reticular dermis to deep dermis. Superficial dermis shows delicate fibroplasia with mucin deposition. There is mild to moderate superficial and deep perivascular infiltrates of lymphocytes, neutrophils and mast cells. The collagen in the reticular dermis appeared to be fenestrated due to deposition of mucin. These findings are consistent with pseudo scleroderma.

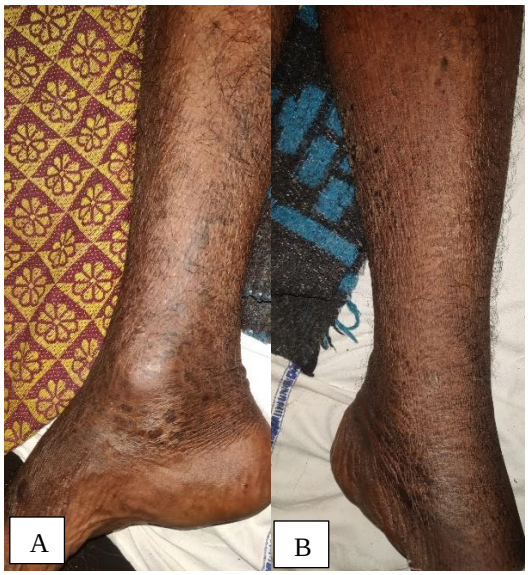

Figure 1: A & B are Right and Left LL resp. Showing woody fibrosis or pseudoscleroderma

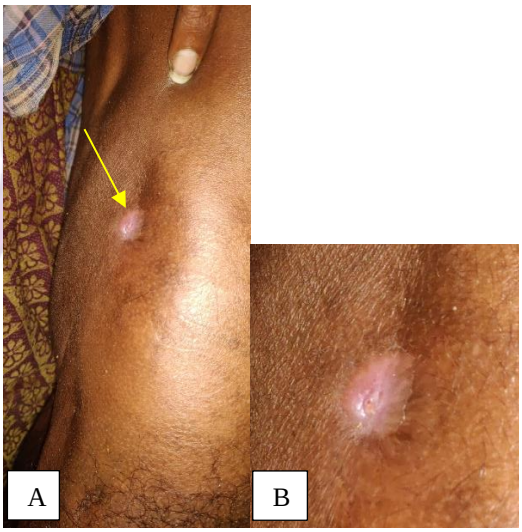

Figure 2: A. Anterolateral aspect of right thigh showing scar mark (yellow arrow). **B.** Zoom view of right thigh, showing depressed depigmented scar

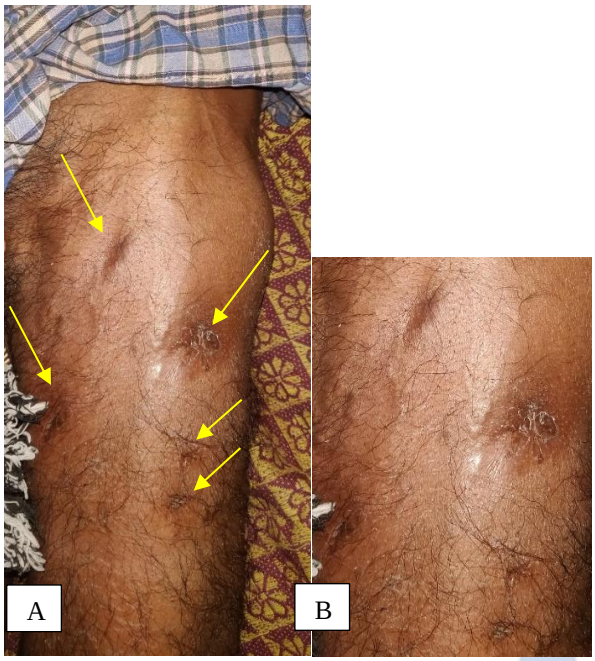

Figure 3: A. Anterolateral aspect of left thigh showing multiple scar marks (yellow arrows). B.Zoom view of left thigh anterolateral aspect showing multiple scars.

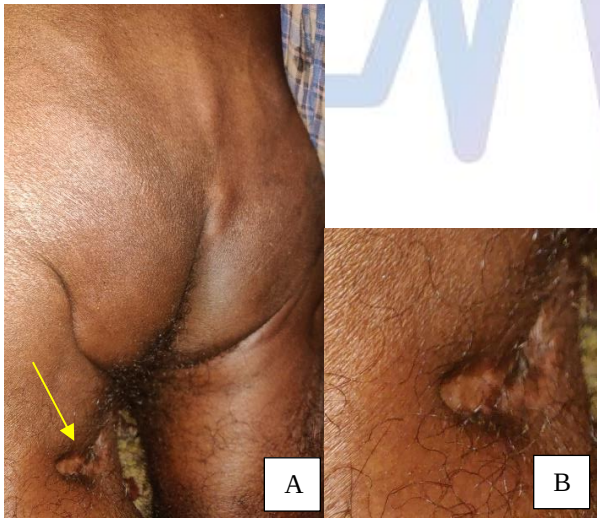

Figure 4: A. Gluteal region - Scar of abscess formation on left thigh posteromedial aspect (yellow arrow). B. Zoom view of left thigh posteromedial aspect showing depressed scar.

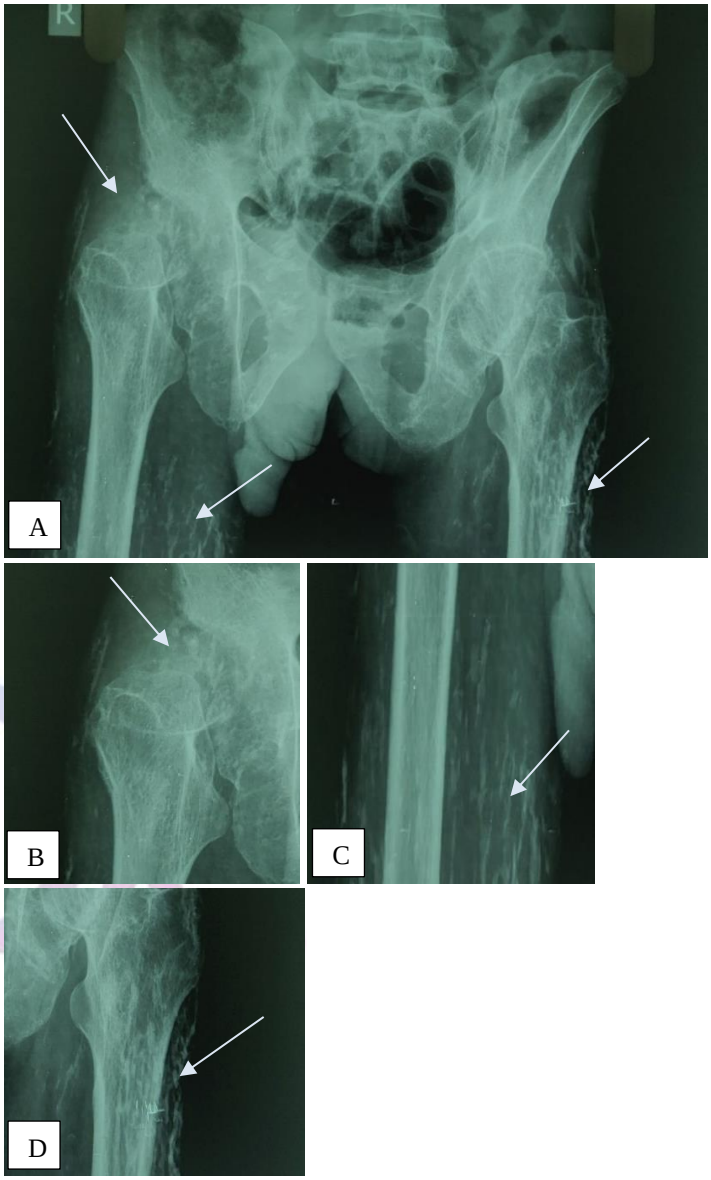

Figure 5: A. X-Ray PBH - Calcified deposition in soft tissues with degenerative changes in right hip joint showing resorption of right head of femur (grey arrows). B. Zoom view of X-ray PBH showing degenerative changes in right hip joint and resorption of right head of femur (grey arrows). C.Zoom view of X-ray right thigh showing calcific deposits in soft tissue (grey arrow). D. Zoom view of X-ray left thigh showing calcific deposits in soft tissue (grey arrow).

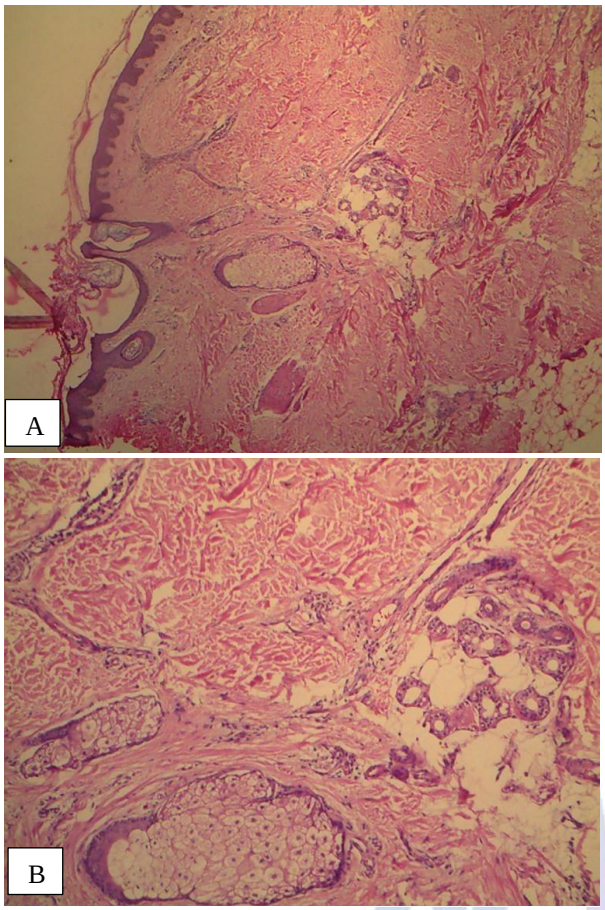

Figure 6: A.Full thickness cross section of skin showing characteristic histopathological findings B. Characteristic findings in the dermis

DISCUSSION

Scleroderma is an autoimmune disorder involving multiple systems thus making the course of this disease unpredictable. Diagnosis of scleroderma is clinical and is made by the presence of Raynaud's phenomenon, typical skin thickening and visceral involvement. The term "pseudoscleroderma" is an umbrella term that has been used to describe skin lesions that imitate or resemble systemic sclerosis.[8] Pseudo-scleroderma refers to sclerosis of skin in conditions other than morphea or systemic sclerosis. This is seen in eosinophilic fasciitis, dermatomyositis, systemic lupus erythematosus, porphyria cutanea tarda, phenylketonuria, paraproteinemia etc. Pathogenesis is thought to be secondary to activation of eosinophils and upregulation of fibroblast and collagen synthesis producing an overall increase in cytokines, specifically interleukin-4 and interleukin-13, as well as transforming growth factor beta.[9] Pentazocine, a non-narcotic analgesic, though has no addictive potential but abused frequently via parenteral route for its psychological dependence. It causes local sclerosis resulting in non-healing ulcer at injection sites. The different forms of scleroderma and the pseudosclerodermas, which clinically partially imitate scleroderma, are rare. Due to the large variety and variability of the clinical course, particularly at the onset of disease, diagnosis may be difficult. For differential diagnosis, the presence of Raynaud phenomenon, antinuclear antibodies and the distribution of sclerosis play essential roles.[10] Prasad *et al.*[11] have described the diagnostic pointers for pentazocine-induced ulcers which are irregular shaped, deep ulcers with black eschars and surrounding induration, halo of hyperpigmentation, ulcers/nodules/scars along superficial veins, woody induration, needle pricks / thrombophlebitis, puffy-hand syndrome, difficulty in venous access, fibrous myopathy, apparent indifference of the patient (lack of discomfort), past history of a chronic painful medical condition, prior iatrogenic administration of pentazocine, patients associated with medical profession (relatively easier access to the drugs). Various mechanisms proposed for the cutaneous side effects of pentazocine include trauma of repeated injections, vasoconstriction with tissue ischemia at injection sites, and inflammatory response to precipitated pentazocine in tissues although the exact mechanism remains unknown.[12] Regarding vasculopathy, histological findings in cases of pentazocine-induced scleroderma included fibrosis of the dermis and panniculus with vascular alterations, fat necrosis with granulomatous inflammation, and vascular thrombosis with occasional endarteritis.[13] In present case, various cutaneous complications showing evidences of woody fibrosis or pseudo scleroderma, abscess formations, healed atrophic scars, post inflammatory hyperpigmentation surrounding ulcers. Osteodegenerative changes with calcific deposition in soft tissues were evident. Pentazocine abuse is known to cause tense woody fibrosis that extends well beyond the sites of injections, irregularly shaped deep ulcers which may expose muscles, halo of hyper pigmentation surrounding the ulcers and surprisingly apparent indifference of the patient towards disfiguring process and lack of expression of face are diagnostic.[14] Despite the multiple challenges connected with drug injection, most self-injectors do not look for medical attention because of a lack of interest and apathy, embarrassment, drug preoccupation, or severe withdrawal that is alleviated by injecting the substance itself, particularly in the opioid group. [15,16,17] Pentazocine abuse should be considered as a differential diagnosis in cases with non-healing ulcers, even when the patient does not volunteer a history of self-medication. Similarly, it is very important to look for the cutaneous complications in pentazocine dependent subjects and manage the same at the earliest.

CONCLUSION

Pentazocine is frequently used by medical, paramedical or nursing staff. Local skin changes are indicative of drug abuse. The incidences of cutaneous complications are multiplying due to its abuse potential. Its easy availability needs to get under control. Awareness in the society is necessary about its addictive potential, complication of intramuscular use, and its serious side effects.

ACKNOWLEDGMENTS

The authors are grateful for the patient and his family for their cooperation and for granting permission to publish the photographs.

Special thanks to Dr. Balkrishna Nikam MD DVL Dermatopathologist, associate professor department KIMS Karad for their contribution to the histological diagnosis.

REFERENCES

1. Vinay Goyal, Jatinder M Chawla, Yatan PS Balhara, Garima Shukla, Sumit Singh and Madhuri Behari, Calcific myofibrosis due to pentazocine abuse: a case report, Journal of Medical Case Reports 2008, 2:160
2. Darçın AE, Noyan OC, Nurmedov S, Dilbaz N. Pentazocine abuse in a healthcare professional. BMJ Case Rep .2016
3. Agashe VM, Patil H, Gundavda MK. Multiple Skin Abscesses and Myofibrosis of Bilateral Lower Limbs Following Repeated Intramuscular Injection of Pentazocine with Concomitant Tuberculous Infection. J Orthop case reports . 2015 22];5(1):15–8.
4. Boin F, Hummers LK. Scleroderma-like fibrosing disorders. Rheum Dis Clin North Am 2008;34:199-220.
5. Bruce CG. Systemic sclerosis. In Braunwald E, Fauci AS, Kasper DL, Hauser SL, Longo DL, and Jameson L. 15th Edition, Harrison's Principles of Internal Medicine. Mc Graw Hill, New York. 2001;2:1937-47.
6. Das CP, Thussu A, Prabhakar S, Banerjee AK. Pentazocine induced fibromyositis and contracture. Postgrad Med J 1999; 75: 361-2.
7. Srikumar V, Wadhwa S, Singh U, Yadav SL, Handa G. Contractures and drug abuse. IJPMR 2009; 20: 34-5.
8. Sizemore TC. A case of hardening of the skin and scleroderma like changes on biopsy: Is it scleroderma or not? A review of pseudoscleroderma and differential diagnosis. Int J Case Rep Images 2015;6(9):546–551.
9. Mori Y, Kahari VM, Varga J. Scleroderma-like cutaneous syndromes. Curr Rheumatol Rep 2002 Apr;4(2):113–22.
10. Fabri, Mario and Hunzelmann, Nicolas. (2007). Differential diagnosis of scleroderma and pseudoscleroderma. Journal der Deutschen Dermatologischen Gesellschaft = Journal of the German Society of Dermatology : JDDG. 5. 977-84.
11. Prasad HR, Khaitan BK, Ramam M, Sharma VK, Pandhi RK, Agarwal S, *et al.* Diagnostic clinical features of pentazocine induced ulcers. Int J Dermatol 2005;44:910-5.
12. Sethi S, Sarkar R, Garg V, Khurana N. Pentazocine-induced ulcers revisited. Int J Dermatol 2016;55:e49-51.
13. Palestine RF, Millns JL, Spigel GT, Schroeter AL. Skin manifestations of pentazocine abuse. J Am Acad Dermatol 1980;2:47e55.
14. Agarwal S, Trivedi M. Cutaneous complications of pentazocine abuse. Indian Journal of Dermatology, Venereology and Leprology. 2007 Jul 1;73(4):280.
15. Bimal Kanish, Anuradha Bhatia, Sandeep Kumar Goyal. "Cutaneous Complications of Injection Drug Abuse". Journal of Evolution of Medical and Dental Sciences 2014; Vol. 3, Issue 28, July 14; Page: 7755-7762,
16. Gaurav Bhateja, B. N. Subodh, Sandeep Grover, and Debasish Basu, Cutaneous Complications With Parenteral Pentazocine Dependence, German J Psychiatry 2006; 9: 53-56
17. Rhodes T, Briggs D, Kimber J, Jones S, Holloway G: Crack-heroin speedball injection and its implications for vein care: qualitative study. Addiction. 2007, 102:1782-90.

Source of Support: None Declared
Conflict of Interest: None Declared