

# Lipogranuloma of Hand Due to High Pressure Diesel Injury

Sunil KR<sup>1\*</sup>, Sanjay KG<sup>2</sup>, Ritesh P<sup>3</sup> and Reena M<sup>4</sup>

<sup>1</sup>Department of Physician in charge of the patient, diagnosed the case & performed surgery, Associate Professor, Burns & Plastic Surgery, AIIMS, Bhubaneswar, Odisha, India

<sup>2</sup>Department of Member of surgical team, Assistant Professor, Burns & Plastic Surgery, AIIMS, Bhubaneswar, Odisha, India

<sup>3</sup>Department of Member of surgical team, Assistant Professor, Trauma & Emergency Medicine, AIIMS, Bhubaneswar, Odisha, India

<sup>4</sup>Department of Member of surgical team, Senior Resident, Burns & Plastic Surgery, AIIMS, Bhubaneswar, Odisha, India

Volume 2 Issue 2- 2019

Received Date: 08 Jun 2019

Accepted Date: 09 Jul 2019

Published Date: 15 Jul 2019

## 2. Key words

Diesel; Hand;  
Lipogranu-loma

## 1. Abstract

Lipogranuloma has been reported to develop after introduction of lipoid material into the body accidentally, self injection or as a part of medical treatment. From the outset these lesions confuse the physicians with the neoplastic growths unless the history is elicited carefully. Such lesion as a result of exposure to high pressure diesel injury to hand is hardly reported. One of our patients sustained such injury and developed Lipogranuloma of hand. Surgical treatment was offered to this patient in multiple stages and the specimen was found to have Lipogranuloma microscopically. This case was unique because the lesion involved the digit circumferentially which alarm meticulous surgi-cal treatment in order to maintain the neurovascular integrity and the function as well.

## 3. Introduction

Lipogranuloma, also known as paraffinoma or oil granuloma has been observed to develop in various parts of the body in response to the local infiltration of lipoid material either accidentally or iatrogenically in an attempt to augment the soft tissue. Some individuals reported this pathology after self injection of petrolatum jelly into the genitalia in order to increase its girth. But Lipogranuloma involving hand has rarely been observed. We received a patient with lipogranuloma which involved the thumb and first web space of right hand.

## 4. Case Report

A 29 years old male presented with a diffuse swelling and in duration of his right thumb extending into the first web space and anatomical snuff box. He had a history of high pressure diesel injury to the pulp of his right thumb while fixing a motor vehicle engine. Initially he had inflammatory reaction over the site and loss of distal part of his pulp for which he received conservative treatment. Gradually the swelling subsided partially and the pulp healed. After 6 months of injury he noticed the entire thumb

with first web space and anatomical snuff box area changed from soft to firm and the swelling increased slowly. On examination we found the involved part swollen uniformly (Figure1A & Figure1B) with a firm consistency. Based on history and clinical findings we diagnosed it to be lipogranuloma of hand. Since the area affected bears enormous significance in terms of function we planned to remove the granuloma in piece meal and in stages. During surgery we found a thick layer of fibrous kind of tissue in the subcutaneous tissue plane, the skin and the underlying muscles being spared. We removed the abnormal tissue from the first web space (Figure 2A & Figure 2B) in the first sitting and subjected the tissue to Histopathological examination. The Histopathological evaluation revealed fibrocollagenous tissue studded with numerous non-caseating granulomas. The later involved histiocytes, epithelioid cells and multinucleated giant cells engulfing fat droplets. The intervening stroma showed several fat droplets surrounded by histiocytes and giant cells. There was no caseation necrosis and special stain demonstrated no fungi or acid fast bacilli. There was also no evidence of malignancy in the specimen. These microscopic findings (Figure 3) were consistent with the features of lipogranuloma. After two months of

\*Corresponding Author (s): Dr. Sunil Kumar Rout, Associate Professor, Burns & Plastic Surgery, Infocity Greens Appartment, Sailashree Vihar, Bhubaneswar, Odisha, India, Tel: 91-9937176025, E-mail: drsunilrout@rediffmail.com, plastic\_sunil@aiimsbhubaneswar.edu.in

first surgery we subjected the patient for second surgery when the radial half of the lesion from thumb and that overlying the anatomical snuff box were removed. Once again the excised tissue was subjected for microscopic evaluation and observed to have similar features.



**Figure 1A:** Dorsal aspect of hand after first surgery (excision from first web space)



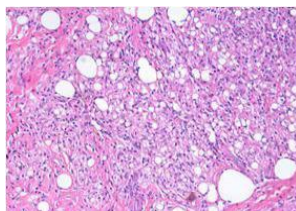
**Figure 1B:** Palmar aspect of hand after first surgery (excision from first web space)



**Figure 2A:** Dorsal aspect of hand after second surgery (excision from anatomical snuff box and thumb)



**Figure 2B:** Palmar aspect of hand after second surgery (excision from anatomical snuff box and thumb)



**Figure 3:** Microscopic picture of tissue removed (with H & E stain and 400x magnification)

#### 4. Discussion

Lipogranuloma involving various parts of the body has been reported to be developed due to injection of lipoid material either accidentally or for cosmetic treatment [1-3]. Similar foreign body granulomatous reaction has been reported to occur due to leaching of silicon from silicone breast implants termed as siliconoma and silicone mastitis [4]. It has also been observed to develop as a complication after use of oil based contrast media to delineate anatomy of salivary duct [5]. With increased practice of autologous fat injection for augmentation of various regions of face this type of pathology is found to be on rise [6]. In some parts of the world self infiltration of petrolatum jelly into the urethra to increase the penile girth is practiced, some of whom seen to develop such complications [7]. In some of the cases these granulomatous reactions may simulate cancer [8]. Though hand is very much vulnerable to such reaction being exposed to various modalities of trauma, the condition developing in hand is hardly reported. We could find only one case report of lipogranuloma of hand published in English literature with similar history of on-set as of ours [9]. But there were some differences between these two cases as regards the clinical evolution and operative findings. Firstly that patient had an isolated small granuloma of 1 cm in all dimensions whereas in our patient it was extensive as described in the text. Others include a history of multiple fistulae with seropurulent discharge and finding of viscous green fluid at the center of the lesion during surgery which was not there in our case. The time taken to develop this granuloma may vary according to the authors who came across these cases which was 6 months in our case. Our case is unique as it confuses the clinicians confused with a neoplastic lesion. The staged treatment of this lesion also sends the message that considering benign nature of the lesion we can treat the affected part without risking the unaffected neurovascular components of the region.

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