

## Intermittent occupational-related lymphedema

### Short title: Occupational lymphedema

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### Abstract

**Objective:** The aim of this study is to report on the occurrence of intermittent occupational-related lymphedema in sugarcane harvesters in Brazil. **Clinical Features:** Two cases of cane cutters are reported. The first is a 39-year-old male who reported that his right hand had been swelling during the course of the working day over the previous eight years and the second, a 48-year-old female, had noticed swelling on the back of her hand for five years. **Discussion:** These reports warn of decompensation of venous and lymphatic return during manual sugarcane harvesting. Swelling and pain may appear in workers due to repetitive movements with a negative impact on their work. The absence of descriptions in respect to sugarcane harvesting is because of a lack of clinical investigations. **Conclusion:** Cutting sugarcane can cause intermittent workrelated lymphedema. Further clinical investigations may help to improve the quality of life of workers in many different types of jobs that involve repetitive movements.

**Key words:** Lymphedema, repetitive motion, sugarcane harvest

### Introduction

Chronic lymphedema is a progressive and a relatively painless swelling of any peripheral tissue – limbs, head and neck, breast, trunk or genitals that is the result of a less-than-optimal transport capacity of the lymphatic system<sup>1</sup>.

Regarding the diagnosis of lymphedema, the patient's history and physical examination were established as of fundamental importance. About complementary diagnostic clinic the Lymphoscintigraphy as part of the initial recommendation in cases of diagnostic doubt. Doppler ultrasound in the initial investigation but when there was suspicion of lymphedema secondary to tumor and Genetic testing in familial lymphedema<sup>2</sup>.

The conservative treatment is the first line of therapy<sup>3</sup> but there is no consensus on one single specific treatment for lymphedema but an association of therapies is recommended<sup>4</sup>.

Everything must be done to prevent lymphedema or treat this disease as early as possible to avoid deterioration with the resulting negative impact on the patient's psychology and quality of life. Social-occupational aspects of lymphedema cannot be neglected<sup>5,6</sup>. Swelling and pain may appear in workers engaged in repetitive activities with a negative impact on work<sup>7</sup>. About work related with an aggravating factor associated with functional limitations and pain in patients with lymphedema after submitted to the treatment of breast cancer. About work related as aggravating factor for functional limitations



and pain in patients with lymphedema is common after being submitted to the treatment of breast cancer). Some studies have described functional alterations in breast cancer-related lymphedema<sup>8,9</sup> however no studies reporting the development of lymphedema due to repeated movements at work were found in the Medline database; studies have only reported that different types of working conditions, such as the environment, instruments and physical adaptation to the demands of work, can influence the general health status in respect to lymphedema<sup>10,11</sup>.

Studies show that sugarcane harvesting is a very labor intensive activity, in which workers often become fatigued because of the long hours of cutting cane with the repetitive movements of the machete directly increasing occupational stress and causing lesions<sup>12,13</sup>.

Brazil has a population of 189 million, 90 million of whom work with more than 16 million being rural workers<sup>14</sup>. It is the largest sugar producer in the world.

Sugarcane cutters are exposed to risks in particular due to repetitive movements which can directly diminish the quality of life with the formation of lymphedema of the arms and consequent limitations in movements. As sugarcane plantations, employing a significant number of workers, are common not only in Brazil but in other parts of the world, the possible occurrence of lymphedema cannot be ignored. The aim of this study is to report on the occurrence of intermittent lymphedema in sugarcane harvesters in Brazil. These workers spend long shifts manually cutting sugarcane using a machete.

### **Case 1.**

The case of a 39-year-old man is reported whose right hand has been swelling during the course of the working day over the last eight years. Although the swelling has worsened over the years it still subsides completely with rest. The patient reported that during these years he cut his hand on three occasions, but sutures were not performed and healing was spontaneous. He did not report pain of the hand however he stated that his movements were limited and he lost sensitivity with the swelling and had difficulty to perform everyday tasks.

He had not looked for any form of treatment previously but adapted to his condition for fear of losing his job.

### **Case 2.**

A 48-year-old female sugarcane cutter reported that she noticed swelling of the back of her hand due to her work over the previous five years. The edema progressively worsened over the course of the day and was uncomfortable by the end of the day as the safety glove, worn to protect the hands during work, became excessively tight. After removing the glove and resting in the evening, the size of the hand improved. The intensity of the swelling has increased over the years but the edema disappears completely with rest. Diagnosis was clinical. The patient did not report pain but she said that she suffered limitations of movements which improved with the reduction of the edema.

### **Discussion.**

These reports warn of decompensation of venous and lymphatic return during manual sugarcane harvesting in Brazil. This activity requires force and repetitive movements and causes trauma during reaping. The absence of descriptions of edema in respect to sugarcane harvesting is due to a lack of clinical investigations. A study of symptoms in sugarcane cutters may better characterize the occurrence of this disease. The pathophysiology of edema may involve functional blocks of the venous system, deficiencies of the lymphatic system and functional overload of blood filtration. This causes an overload of the functional reserve of the lymphatic system resulting in lymphedema. Rest, in these cases, leads to normalization of the size of the limb and so a more advanced stage of lymphedema does not develop and the patients just remain with intermittent lymphedema. In these patients the onset of edema in the course of the work suggests that it is associated with increased capillary filtration due to repetitive stress. These findings warn of the occurrence of work-related lymphedema in sugarcane cutters showing a need to investigate the frequency of this disease.

### **Conclusion.**

Cutting cane can cause work-related intermittent lymphedema. Further clinical investigations may help to improve the quality of life in many different types of jobs that involve repetitive movements.

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