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Case Report: Use of Rib Compression Belt for Pain in Osteoporosis

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INTRODUCTION

It is well known that osteoporosis of the spine can lead to painful episodes caused by compression fractures or by microfractures of vertebrae. Not well known, however, is the fact that in a number of patients with osteoporosis, very severe pain is caused by contact of the lower ribs with the pelvis. This is a result of reduction in height of the lumbar spine due to compression fractures. In these latter patients the pain can be dramatically reduced, even totally relieved, by an elastic rib compression belt.

DIAGNOSIS

The diagnosis of this particular pain syndrome is determined through history, examination, and x-rays.

The history usually reveals a marked loss of height of the patient. He complains of severe pain at the iliac crest posteriorly and laterally on certain motions, such as getting up from a chair or bed. On examination, all

Figure 1. Rib compression belt properly applied.

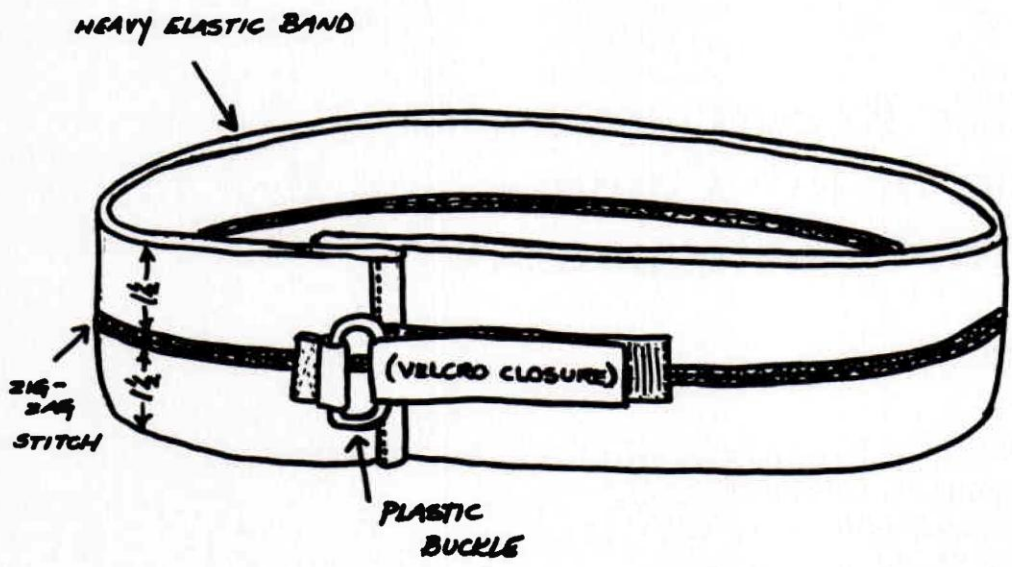

Figure 2. Construction of the rib compression belt.

trunk motions cause pain at the iliac crest. Palpation of the iliac crests shows that there is no space between the ribs and the pelvis, and there is marked tenderness in this area. X-rays of the lumbar spine show compression fractures with marked loss of height of the lumbar spine.

FABRICATION AND APPLICATION

The rib compression belt is a heavy elastic band three inches wide with Velcro® closure, which is worn around the waist just above the iliac crest (Figure 1). It is made of one and one half inch wide elastic pieces which are sewn together with a zig zag attachment on the sewing machine. The belt is then three inches wide. The elastic is a heavy artificial limb elastic.

A one inch wide Velcro® strap closure is used in an eight inch long piece, which closes and pulls back on itself through a plastic one inch buckle (Figure 2).

Frequently, pain is relieved immediately upon fitting of the belt and the patient can move without discomfort. The appliance is worn for one month; at first day and night, and then in daytime only. After one month, most patients remain pain free even without using the rib compression belt.

CASE HISTORY

A.K., a 74 year old female, was seen on January 9, 1981 complaining of severe pain all around the lower chest margin. This pain was aggravated by any motion, but particularly while sitting down and standing up from a chair and by getting out of bed. The patient had her menopause at age 39 and took estrogens for four years. She weighs 132 pounds and her height is five feet, one inch. She states that her former height was five feet, six inches. On inspection in standing position, it is noticeable that the lower chest margin is in contact with the pelvis. Palpation of the iliac crest confirms this finding. Every point on the iliac crests, posteriorly and laterally, is exquisitely tender to palpation.

X-rays of the dorsal and lumbosacral spine show many vertebral compression fractures. The height of the lumbar spine was reduced fifty percent.

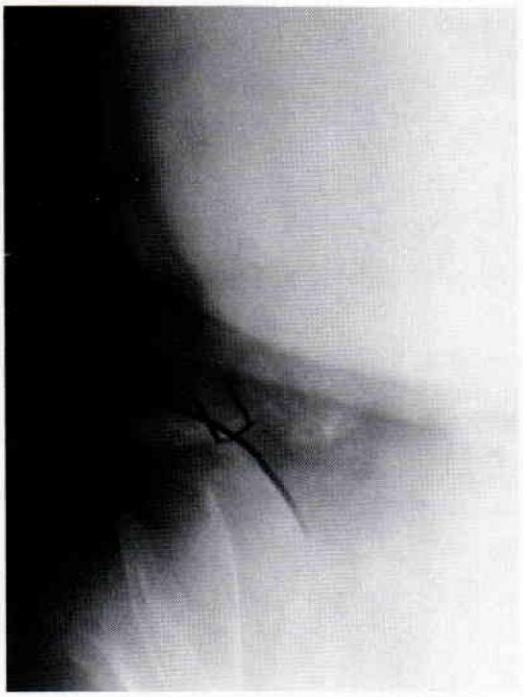

Figure 3A. Forty five degree left posterior oblique view of the pelvis and lower ribs taken without the rib compression belt shows the lower right ribs adjacent to the superior margin of the iliac crest. X-ray beam is centered at the iliac crest.

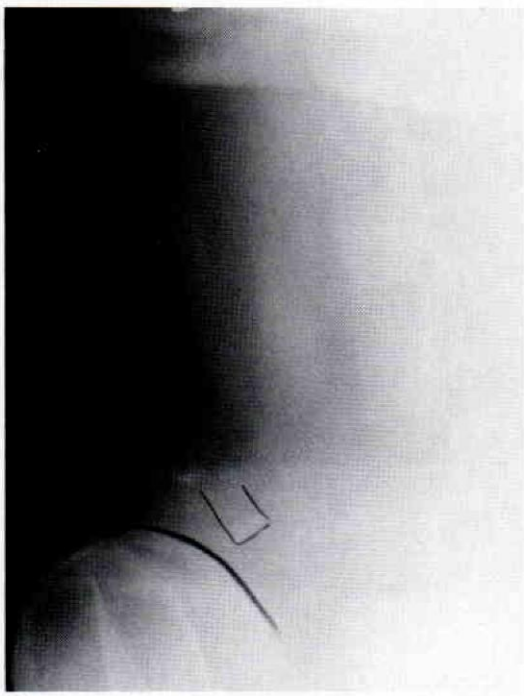

Figure 3B. Repeat exam with the rib compression belt in place now shows the lower right ribs anterior to and clearing the iliac crest.

Application of a rib compression belt provided immediate relief of the constant pain at the lower chest margin and considerably relieved the pain caused while standing up and sitting down. Oblique views of the pelvis with and without the rib compression belt are shown in Figures 3A and 3B.

AUTHORS

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