
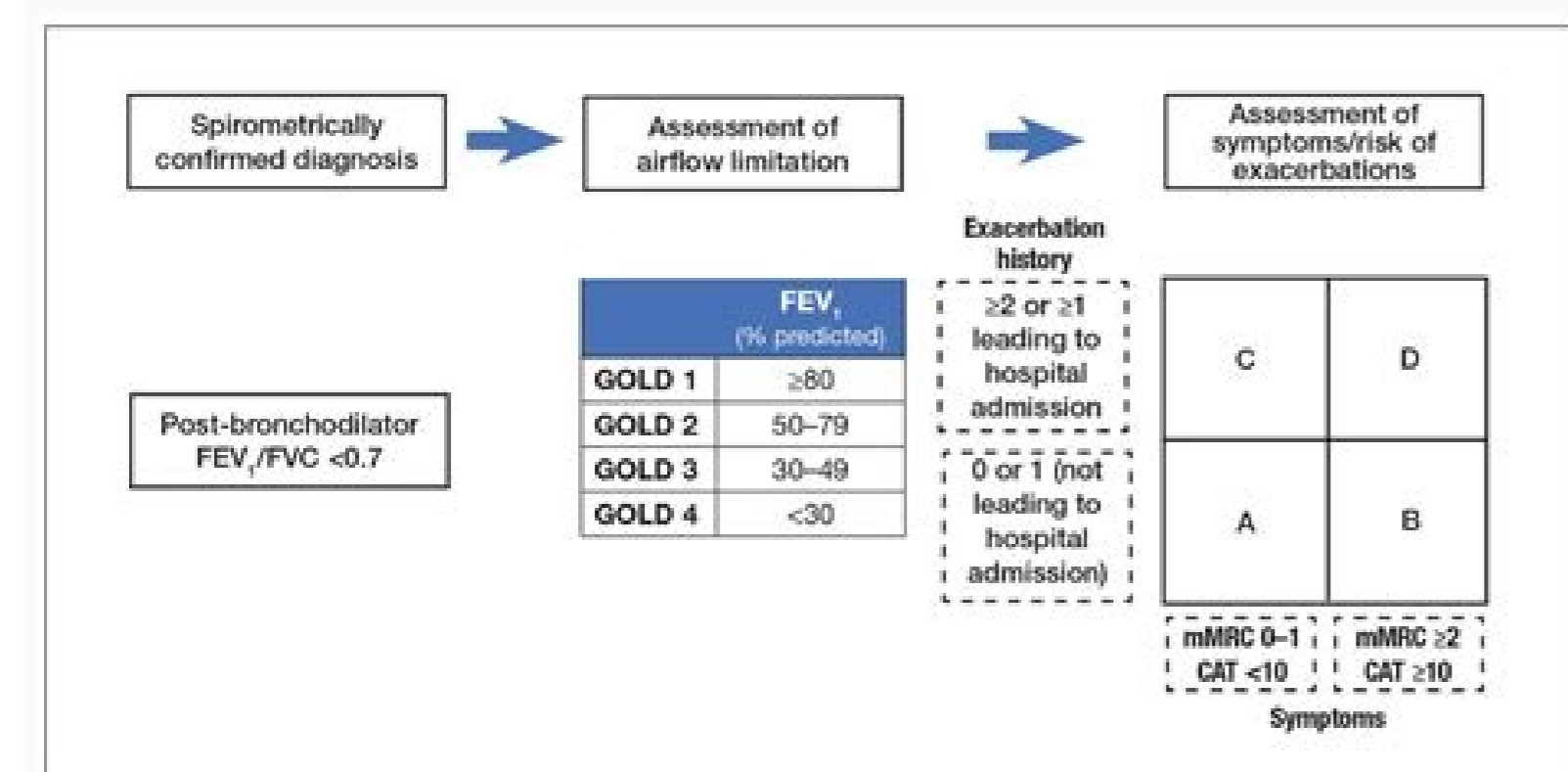
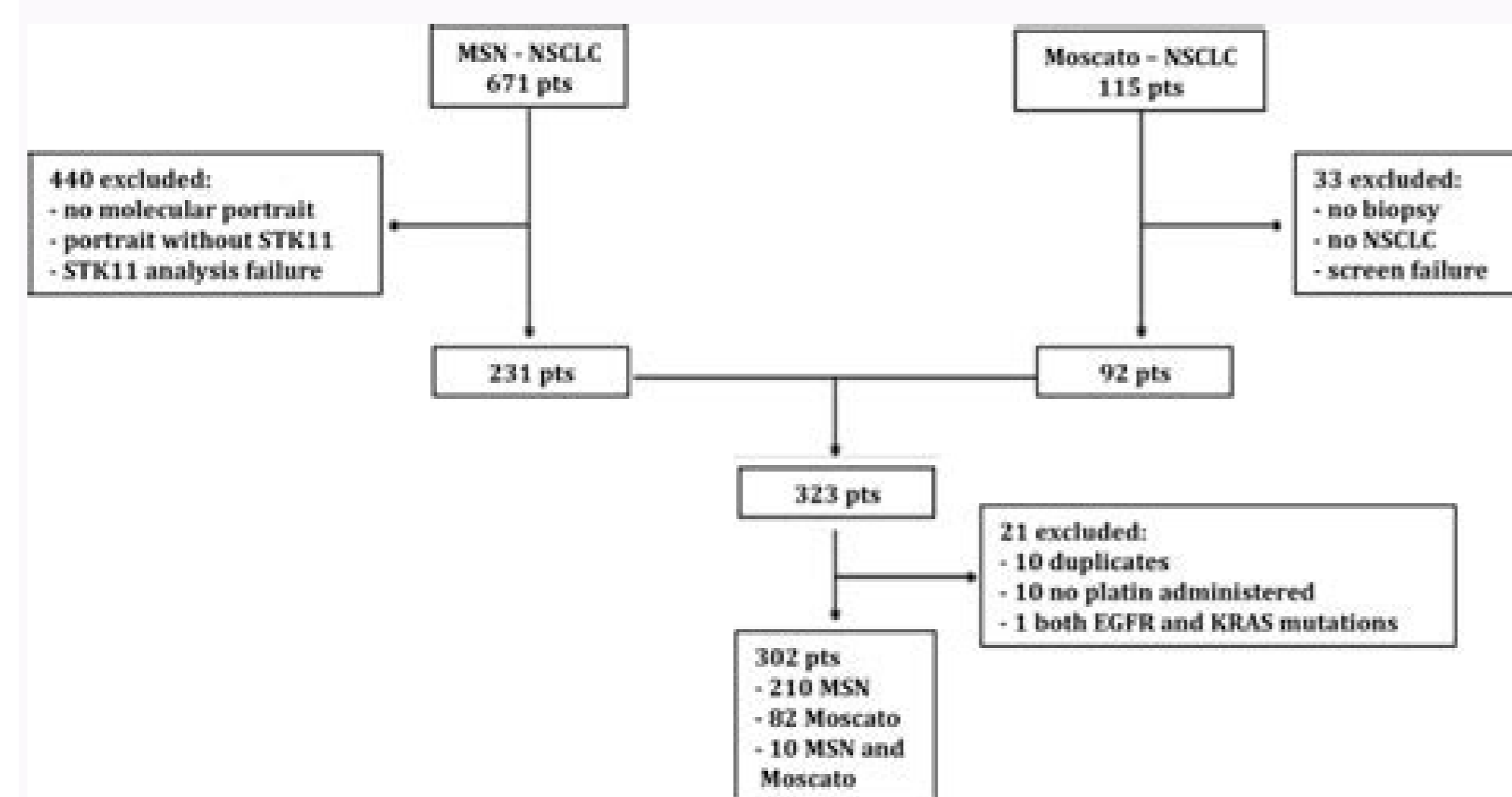
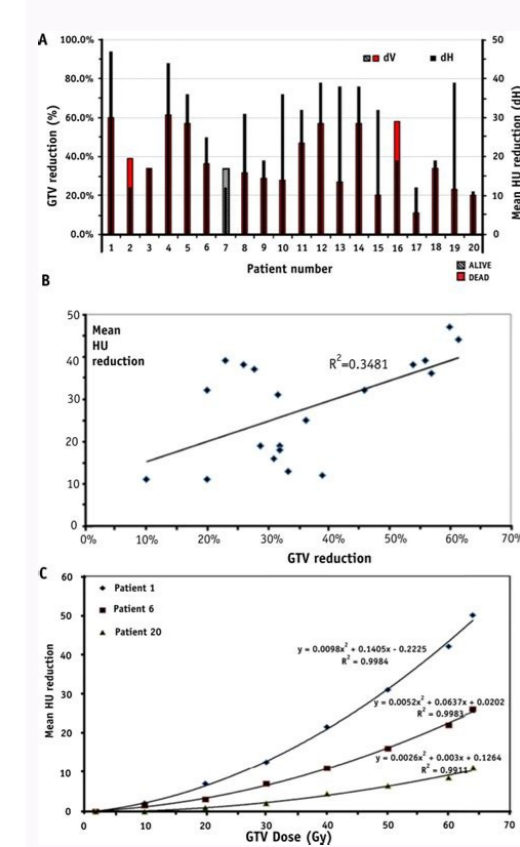


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Abbreviations: CAT, COPD Assessment Test; FEV₁, forced expiratory volume in 1 second; FVC, forced vital capacity; mMRC, modified Medical Research Council. Reproduced with permission from the Global Initiative for Obstructive Lung Disease (GOLD), Global Strategy for the Diagnosis, Management and Prevention of COPD, 2017.

Bilateral First Rib and Associated Lower Cervical Spine Fractures

Introduction

First rib fractures are uncommon, bilateral first rib fractures (BFRFs) being a rarer entity.^{1,2} Due to their deep seated position and protection from surrounding musculature, violent trauma such as that involving motor vehicle accidents (MVA) are a frequent cause of these fractures. Important to note are the circumstances in which patients survive this polytrauma, including the fact that it is possible other serious head and neck injuries may be missed, necessitating extra vigilance in the initial assessment.

Objectives

To report prior cases, thereby increasing awareness of this rare condition. To highlight the significant correlation between radiographic findings of bilateral rib fractures and vertebral fractures, more specifically, C7 vertebrae fractures.

Case Reports

Here we present two interesting cases involving bilateral first rib and C7 vertebrae fractures.

Case 1

A 20 year-old male motorcyclist crashed and fell backwards hitting his head first (with his helmet on) near the occipital area. At the emergency department, he complained of pain over his lower neck and was found to have tenderness at the lower cervical region and was unable to fully abduct both his upper limbs. No other neurovascular abnormalities or chest injuries were detected.

Radiological examination indicated bilateral first rib and C7 transverse process fractures. Both clavicles were intact. A CT scan of the chest showed a small left haemothorax with adjacent lung contusion. No pneumothorax was seen and the right lung field was clear. The heart was of normal size with no pericardial effusion and the main vessels are of normal caliber.

The haemothorax was treated conservatively with patient on Philadelphia collar with thoracic extension for two months. At 18 months follow-up, complete healing occurred with no complications noted.

Case 2

A 46-year old man was involved in a motor vehicle accident (MVA) and sustained fractures of the skull, mandible, and maxilla, both first ribs, left 2nd and 3rd ribs, left clavicle and left scapula.

A CT scan of the head revealed multiple facial bone fractures and a left temporal extradural hemorrhage while CT scan of the chest showed a left haemothorax and subcutaneous emphysema. A CT scan of the cervical spine confirmed fractures of both first ribs and the left C7 transverse process. MRI of the cervical and brachial plexus area noted a presence of haematoma on the left paraspinous region compressing the upper left brachial plexus,

which was not properly visualized.

Clinically, the patient had Horner's syndrome and was thus diagnosed with a pre-ganglionic upper brachial plexus lesion (C5, C6, C7).

Approximately two months post-trauma, the patient recovered from his injuries but the brachial plexus injury remained.



Figure 1: Bilateral first rib and C7 transverse process fractures seen on the AP view of the cervical spine radiograph.

Case Report

Volume 7 Issue 5 - 2017

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Received: December 15, 2016 | Published: March 24, 2017

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