



ISSN NO. 2320-5407

Journal homepage: <http://www.journalijar.com>

INTERNATIONAL JOURNAL  
OF ADVANCED RESEARCH

## RESEARCH ARTICLE

### Small needle decompression is equally effective like chest drain in a case of massive pneumothorax: a case report

\*Dr .Amit Bhowmik<sup>1</sup>, Dr.Tina Roy Bhowmik<sup>2</sup>.

1. Consultant and Coordinator,H.O.D,Acute Care, GHSPL, Krishnanagar, Nadia, West Bengal.
2. Assoc.Consultant,Cardiology , GHSPL, Krishnanagar, Nadia, West Bengal.

#### Manuscript Info

##### Manuscript History:

Received: 14 December 2015  
Final Accepted: 25 January 2016  
Published Online: February 2016

##### Key words:

Tension,pneumothorax, needle-decompression,chest drain, water seal

##### \*Corresponding Author

Dr .Amit Bhowmik.

#### Abstract

Tension pneumothorax occurs in sudden rupture of bullae from prolonged increase in intra-alveolar pressure. [1]. A patient was diagnosed with tension pneumothorax. Immediate needle decompression done with a large bore needle and it was connected to a water seal. The pneumothorax was completely resolved thus bypassing a conventional chest drain.

Copy Right, IJAR, 2016.. All rights reserved.

#### Introduction:-

Tension pneumothorax is a life-threatening condition that can occur with chest trauma and is more likely to happen with trauma involving an opening in the chest wall. It is the progressive build-up of air within the pleural space, usually due to a lung laceration which allows air to escape into the pleural space but not to return. Positive pressure ventilation may exacerbate this 'one-way-valve' effect. Progressive build-up of pressure in the pleural space pushes the mediastinum to the opposite hemi thorax, and obstructs venous return to the heart. This leads to circulatory instability and may result in traumatic arrest.

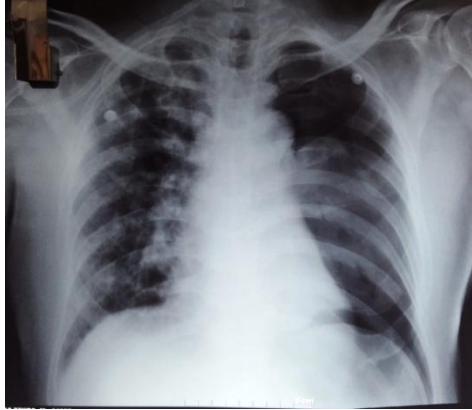
The classic signs of a tension pneumothorax are deviation of the trachea away from the side with the tension, an increased percussion note and a hyper-expanded chest that moves little with respiration [2]

Recognizing and treating it quickly is important.

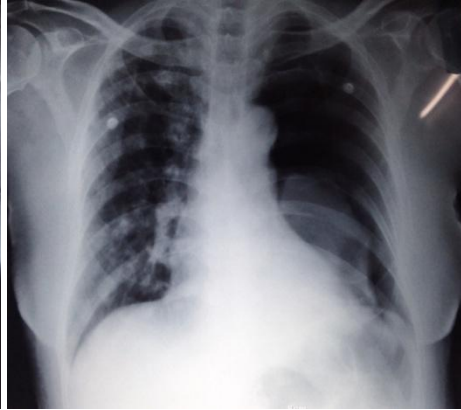
#### Case Report:-

64 yrs., male patient presented with sudden onset of respiratory distress for which he was admitted in another hospital. The symptoms were mild on presentation which increased gradually and he was shifted to our hospital for further management. The patient had a recent history of hospitalization in the same hospital for LRTI, urosepsis and arrhythmia. He was also a case of Ca-urinary bladder. He was recovered from the respiratory infection with a residual cough during the last visit.

On admission the patient was having respiratory distress and bouts of cough in between. In ER an immediate chest X-ray (**Fig: 1**) was taken but in supine posture and the patient was clinically examined with minimal decrease in air entry on the left side of his chest. The patient was immediately transferred by junior doctor to the ICU for further treatment as there were other critical cases in ER.



**Fig 1:** chest X-ray AP supine (in ER)



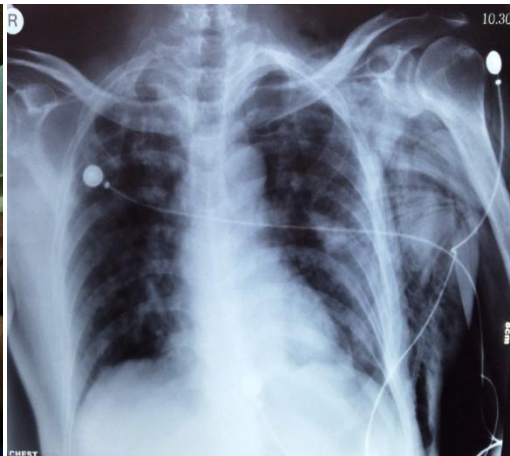
**Fig 2:** chest X-ray AP sitting (in ICU)

In ICU patient became very much dyspneic and in distress. He was fully conscious and oriented. O/E-BP-150/90 mmHg, HR-142/min, SPo<sub>2</sub> – 93% (6 liters O<sub>2</sub>/ min.)

Clinical examination by the on duty consultant found hyper resonant left lung along with almost absent breath sound. Although trachea was still in midline the immediate diagnosis was **impending tension pneumothorax**. Immediate needle decompression to release tension was the verdict followed by a chest drain in the same side. Fortunately, we had an access to the portable X-ray and an exposure was taken (**Fig 2**) while arranging for chest drain. With all asepsis and precautions needle decompression was done in the left second intercostal space in the mid clavicular line. Initially it was drawn with a 10cc syringe with distilled water in it. A good amount of air bubble came out. Later it was decided to keep that in situ connecting to a water seal through a simple IV line (**Fig: 3**) other measures of conservative treatment were continued.



**Fig-3:** Needle compression being done



**Fig-4:** chest X-ray AP sitting  
(Post Needle compression)

Patient got immediate relief from the procedure. He was less dyspneic and now he was maintaining a SPo<sub>2</sub> of 98 % with 2 liters of moist oxygen only. All the vital parameters were within normal limit. While preparing for a definite management with a chest drain an X-ray chest (sitting) was taken (**Fig: 4**) which showed complete expansion of the left collapsed lung and no sign of pneumothorax. Surgical emphysema was found in the same side. Urgent general surgery opinion was taken who advised to maintain the conservative approach. Patient recovered completely in few days' time. So, the decision of chest drain was withheld.

**Discussion:-**

The conventional way to relieve a tension pneumothorax is to immediate relief by needle decompression followed by a definite chest tube insertion to drain the air. While a relatively simple procedure, chest drain carries a significant complication rate, reported as between 2% and 10% [3]. While many of these complications are relatively minor, some require operative intervention and deaths still occur. So, if a small needle decompression is done initially followed by converting the same as a maintenance drain that will reduce the complication rate to near zero.

**Conclusion:-**

Although it is the first reported case in our set up, we need more cases to strengthen the data and it can be tried in other institutes as well thus revealing the actual data in managing a tension pneumothorax with only a small puncture.

**References:-**

1. Bulla of the Lung
2. E. ROBERT WIESE
3. *Chest*. 1946;12(3):238-241. doi:10.1378/chest.12.3.238
4. <http://journal.publications.chestnet.org/article.aspx?articleid=1052042>
5. <http://www.emsl.com/trauma/articles/957467-Tension-Pneumothorax-Identification-and-treatment/>
6. <http://www.trauma.org/archive/thoracic/CHESTtension.html>.