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RESEARCH ARTICLE

DOES SIZE MATTERS? A 174 CASE STUDY ABOUT THE SIZE OF THE DRAIN ON THORACIC EMPYEMA THERAPY

Efstathios K. Metaxas,[1,*] Konstantinos Tzelepis, [2]Ioannis Stamatatos, [3]Konstantina Giannakopoulou, [4]Maria Gkioka, [4]Ioannis Demiris, [5]Anna Maria Mitropoulou,[5]Eleni Alexandra Maniotis,[5]Dimitris Broutas, [5]Stella Assoti, [4]Elias Perros, [4]Georgia Simou,[4]Evridiki Kiritsi,[4]Efstathia Evangelopoulou[4]

[1]Department of Thoracic Surgery, General Hospital of Nicaea-Piraeus, Greece
[2]Department of Urology, General Hospital of Nicaea-Piraeus, Greece
[3]Department of Vascular Surgery, General Hospital of Nicaea-Piraeus, Greece
[4]Department of Respiratory Medicine, General Hospital of Nicaea-Piraeus, Greece
[5]Department of General Surgery, General Hospital of Nicaea-Piraeus, Greece

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ABSTRACT

Background: Aim of the study to determine if the size of the chest drain matters on thoracic empyema therapy. Also to analyze the aetiologic factors, management and strategy for surgery, morbidity and mortality. **Material and Methods:** In a 21 year period a retrospective study took place. One hundred seventy four (174) patients treated for thoracic empyema, at Thoracic Surgery Department at General Hospital of Nicaea-Piraeus Agios Panteleimon –Greece. **Results:** During a 21 year period (from 1998 to 2019) one hundred seventy four (174) patients diagnosed with thoracic empyema, 119 male (68,713%) and 55 female (31,609 %), aged 19-91 years mean age 47 years.Most of the developed empyemas were post pneumonia. The two most common were Streptococcus pneumoniae and Staphylococcus aureus. Almost all patients had developed already purulent effusion (not early empyema) due to late referral to our department. All patients underwent chest drain insertion. One hundred sixteen patients (116) received chest drain (tube or pleural cath) insertion and medication (antibiotics /antibiogram, antipyretics, nebulizers) and physiotherapy, had uneventful recovery.The rest of the population group 58 (33,333%) underwent surgery. All 174 patients received initially chest drains.The majority 135 underwent chest drain 28F most of them and a few 32F. One third of them 46(34,074%) underwent thoracotomy and decortication.Thirtyeight(38) patients underwent tiny drain insertion 14F pleural cath. One third almost 12 (31,578%) underwent surgery too.Elderly patients had longer stay in the hospital comparative to younger group of population. **Conclusion:** The right drainage of the purulent pleural cavity is crucial. The size of the drain does not matter. Only one third underwent surgery. Most of the developed empyemas were post pneumonia. Streptococcus pneumoniae and Staphylococcus aureus were the most common bacteria.Elderly patients had longer stay in the hospital comparative to younger group of population.

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INTRODUCTION

Pleural empyema affects a large number of patients each year and has severe and disabling sequelae when it is not recognized or is treated incorrectly.

Corresponding author: **Efstathios K. Metaxas,**
Department of Thoracic Surgery, General Hospital of Nicaea-Piraeus, Greece.

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MATERIAL AND METHODS

In a 21year period a retrospective study took place. One hundred seventy four (174) patients treated for thoracic empyema, at Thoracic Surgery Department at General Hospital of Nicaea-Piraeus Agios Panteleimon –Greece.

RESULTS

During a 21year period (from 1998 to 2019) one hundred seventy four (174) patients diagnosed with thoracic empyema, 119 male (68,713%) and 55 female (31,609 %), aged 19-91 years mean age 47 years. Most of the developed empyemas were post pneumonia. The two most common were Streptococcus pneumoniae and Staphylococcus aureus. Almost all patients had developed already purulent effusion (not early empyema) due to late referral to our department.
All patients underwent chest drain insertion. One hundred sixteen patients (116) received chest drain (tube or pleural cath) insertion and medication (antibiotics /antibiogram, antipyretics, nebulizers) and physiotherapy, had uneventful recovery. The rest of the population group 58 (33,333%) underwent surgery. All 174 patients received initially chest drains.The majority 135 underwent chest drain 28F most of them and a few 32F. One third of them 46(34,074%) underwent thoracotomy and decortication. Thirtyeight (38) patients underwent tiny drain insertion 14F pleural cath. One third almost 12 (31,578%) underwent surgery too. Elderly patients had longer stay in the hospital comparative to younger group of population. Three deaths recorded (all male octogenarians), two by sepsis and respiratory failure and one by myocardial infarction.

DISSCUSION

Pneumonia, pleural effusion, lung abscess, bronchiectasis, COPD, rheumatoid arthritis, alcoholism, diabetes, surgery or recent trauma, a weakened immune system (patients under chemotherapy, or HIV+,AIDS), are very close related to thoracic empyema (Metaxas, 2007; Efstathios, 2019; Efstathios, 2019). Occasionally, empyema may occur post surgery on the chest (Metaxas, 2007; Efstathios, 2019; Efstathios, 2019). Medical instruments can transfer bacteria into pleural cavity. Also unsterile-septic conditions like chest drains insertion or procedures in pleural cavity may cause empyema (Metaxas, 2007; Efstathios, 2019; Efstathios, 2019). Thoracostomy is very rare in our days with large spectrum antibiotics and in time treatment of empyema. [1,2] It may seen in chronic empyema post procedures for TBC or Cancer (Metaxas, 2007). Considered useful treatment specially in elderly and with many comorbidities patients (Metaxas, 2007; Efstathios, 2019). Hardavella et al supported that mechanical debridement is superior to enzymatic debridement in the management of thoracic empyemas (Georgia, 2011). It is a minimal invasive and effective technique allowing direct visualization of it (Georgia, 2011). Nayak et al supported that younger populations may affected because of iv drug use and infected traumatic haemothorax (Rahul Nayak, 2020). Also Ho c , Chen et al have shown that diabetes and a higher comorbidity index in patients with COPD are independent risk factors for the development of empyema (Ho, 2020).

There is an analysis one of the largest population – based cohort studies describing the epidemiology and management of thoracic empyema that observed an increase of Thoracic empyema (Rahul Nayak, 2020). Also the proportion of patients treated nonoperatively steadily declined from 85.2% to 71.2% in 2007 (Rahul Nayak, 2020). Has risen to 79% in 2015 with a continued increasing trend. The use of VATS increased over a twenty year study period (Jan 1996 – Dec 2015). (Rahul Nayak, 2020).

Image 1. Localized empyema

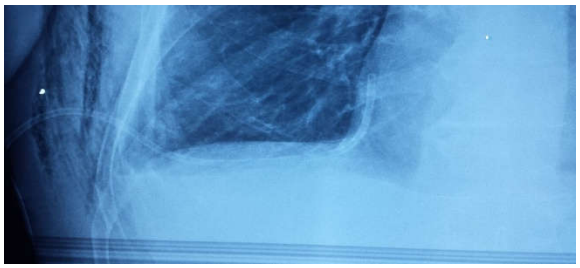

Image 2. Localized empyema treated successfully with tiny chest drain -pleural cath

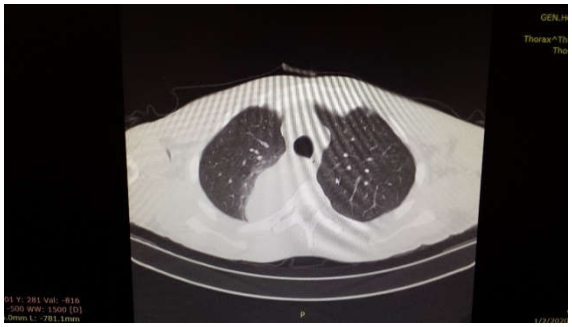

Image 3. Localized empyema on the right

Image 4. Localized empyema on the right treated successfully with tiny drain.Also left pleural effusion.

The proportion of patients treated surgically with VATS or open thoracotomy was similar from 2011 to 2015 at roughly 50% (Rahul Nayak, 2011).

Image 5. Post left thoracotomy and decortication for empyema

Conclusion

The right drainage of the purulent pleural cavity is crucial. All patients underwent chest drain insertion initially. The size of the drain does not matter. One third underwent thoracotomy and decortication. Pleural cath considered useful for the localized pleural effusion and empyemas. Most of the developed empyemas were post pneumonia. Streptococcus pneumoniae and Staphylococcus aureus were the most common bacteria.

Elderly patients had longer stay in the hospital comparative to younger group of population.

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