

**PROFILE IN CHILDREN
INTERNEED AT THE
HOSPITAL PEDIATRIC
DAVID BERNARDINO
(ANGOLA) WITH
PNEUMONIA
NECROTIZING IN 2018**

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Abstract: Introduction: The pneumonia necrotizing It is one illness defined as consolidation of a pulmonary segment with necrosis in its periphery with multiple cavities, walls thin visible for the Tomography Axial computerized. **Objective:** To describe the clinical, laboratory and imaging profile of children admitted to the David Bernardino Pediatric Hospital (Angola) with necrotizing pneumonia from February to October 2018. **Methodology:** Study prospective type series in cases accomplished in 18 children with ages understood in between two months and 14 years old in age. Were analyzed at variables age, sex, vaccination status, nutritional status, socio-economic level of country, disease duration before diagnosis, previous antibiotic therapy and results in exams in diagnosis, treatment, complications and state the exit. **Results:** The mean age was 39 months. Fever was present in 100% From cases, The difficulty respiratory in 94.4%, malnutrition moderate in 39% and anemia in 50% of cases. The erythrocyte sedimentation rate was in mean of 97 mm Hg in the 1st hour, the number of leukocytes of 36,100/mm³ and the length of stay of 39 days. *Streptococcus pneumoniae* was isolated in pleural fluid in 16.6% of cases, *Staphylococcus aureus* and *Proteus mirabilis* in 11.1% of cases. The most frequent complications were empyema with fistula (77%), empyema without fistula (15.5%) and Pyopneumothorax (7.5%). **Conclusion:** The diagnosis of necrotizing pneumonia must be considered in children who maintain a fever despite adequate treatment of pneumonia. **Keywords:** Necrotizing pneumonia. Children. David Children's Hospital Bernardino. Angola.

INTRODUCTION

The pneumonia constitutes a reason common in hospitalization at population pediatric. complications resulting in

pneumonia bacterial reduced significantly with the use in antibiotics appropriate. Occasionally, occur complications serious as pneumonia necrotizing, abscess pulmonary, bronchopulmonary fistula and empyema. Necrotizing pneumonia has been rarely described in children, despite being widely reported in adult literature ⁽¹⁾.

Necrotizing pneumonia is a disease defined as the consolidation of a segment pulmonary with necrosis in your periphery forming multiple cavities in thin walls visible by CT Axial Tomography (TAC). THE initial presentation by chest X-ray may be in the form of empyema or pneumothorax ^(2,3).

The first cases in children were reported in a case series of 4 children in 1994. Subsequently, case reports and small retrospective series of 2 – 18 cases in children. Since then, there has been a gradual increase in cases in the United States of America, United Kingdom, France, Taiwan, Israel due to serotypes no vaccines ⁽⁴⁾.

In Africa you Data are scarce. In 2015 he was described a case in Mozambique in a 6-year-old child with resistant staphylococcus aureus to methicillin ⁽⁵⁾.

In Angola, despite the occurrence of empyema and pulmonary abscess, as complications of the pneumonia in children, no exist Data published about necrotizing pneumonia.

This study intends to contribute to the knowledge of the factors related to this disease, which despite being rare is a serious complication of pneumonia community-acquired in children.

METHODOLOGY

A prospective case series study was carried out in 18 children with aged between 2 months and 14 years old hospitalized in the HPDB, in Luanda, (Angola), from February to October 2018, with clinic and radiology

chest signs suggestive of necrotizing pneumonia.

Were analyzed at following variables: age, sex, state vaccine, state nutritional, level partner economic from country, time in illness before of diagnosis, antibiotic therapy Preview, blood count, protein Ç reactive, exam direct bacteriology and culture of pleural fluid, radiography and tomography chest scan, treatment, complications and status at exit.

DATA COLLECTION AND ANALYSIS

Data were collected per interview to escort of the child, complemented with you gifts at the process clinical using a form preset, encoded for The Prohibited in Data at the computer.

Procedures and techniques such as measuring weight, height was performed with portable scale model CMS PBW 235 and Shork Board stadiometer USA Maryland 20862 for children up to 3 years old and altimeter attached to the scale for the older children. For leukometry and hemoglobin, we used the device

Coulter model. The direct bacteriological and cultural examination were carried out by the gram staining method and optical microscope visualization; in between solid in agar blood and agar chocolate respectively. At xrays of thorax performed in posteroanterior views (Siemens-Luminos apparatus) and TAC were carried out by technicians with the image of HPDB.

For the analysis of the variables, the Excel program was used. The data were presented as frequency, average and percentage. The significance statistic he was considered gift When value in $P < 0.05$.

RESULTS

Average of frequency %	
Age in months 36	
Moderate malnutrition 7 39	Card vaccinated 4 30
Fever 18 100	
Breathing difficulty 17 94.4	Hemoglobin < 7.3 g/dl 9
50 Breathing velocity	
erythro sedimentation 97 mm/1st h	Leucometry 36,100/mm ³
Hospitalization time 39 days	
Treatment with clindamycin and ceftriaxone 15 83	

N=18

Table 1: Features clinics and laboratory of 18 children hospitalized in HPDB with necrotizing pneumonia in 2018.

The mean age of the 18 children analyzed was 39 months. the malnutrition moderate he was found in 39% From cases. Only 30% in children presented card in vaccines. The fever been gift in 100% From cases, respiratory difficulty in 94.4% and anemia in 50% of cases. The average of erythrocyte sedimentation rate was 97 mm Hg in the 1st hour, from the number of leukocytes was 36,100/mm³ and the length of hospital stay was 39 days. THE clindamycin and the ceftriaxone were medicines used in 83% cases.

Age <12 months	12-60 months	positive culture
S. Pneumoniae 0 3 (16,6%)	S. Aureus 2 (11,1%)	0
Proteus Mirabilis 2 (11,1%)	0	Negative culture 0 11 (61,1%)

Table 2: Distribution of bacteria at the liquid pleural and range age of 18 children with necrotizing pneumonia in HPDB in 2018

Regarding the distribution of bacteria in the pleural fluid and age group, the *Streptococcus pneumoniae* was isolated in 16.6% of the cases in the age group of 12 – 60 months of age. *Staphylococcus aureus* and *Proteus Mirabilis* were isolated in 11.1% of cases, respectively, in children younger than 12 months of age.

age. Culture was negative in 61.1% of cases in children aged 12 – 60 months deity.

Figure 1 shows radiological images suggestive of necrotizing pneumonia and the figure two, images in tomography axial computerized what confirm the diagnosis

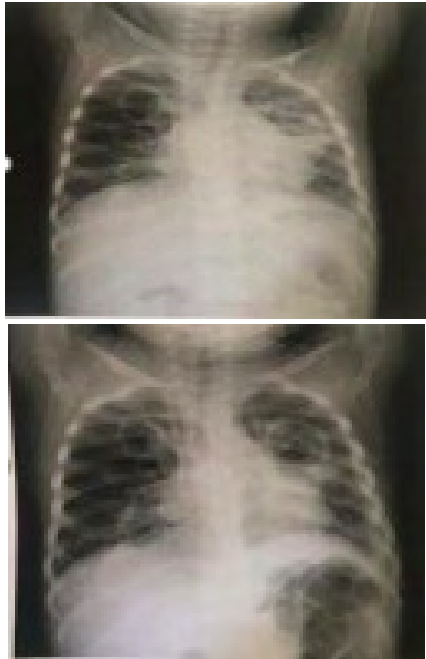


Figure 1: Images radiographs of necrotizing pneumonia - HPDB.

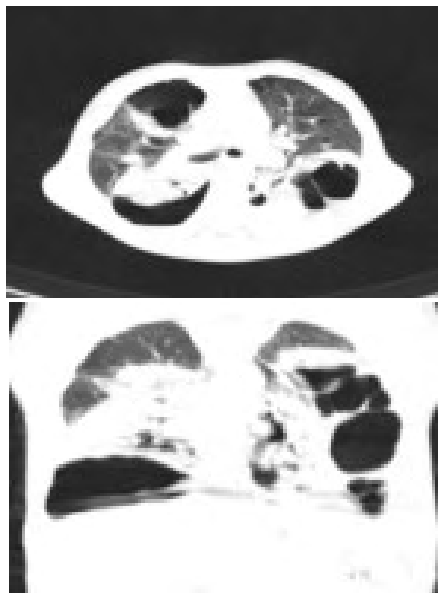


Figure 2: Tomography axial computerized in pneumonia necrotizing -HPDB

Frequency %
Empyema with fistula 14 77 Empyema without fistula 3 15.5 Pyopneumothorax 1 7.5
Total 18 100

Table 3: complications observed in children hospitalized at the HPDB with necrotizing pneumonia in 2018.

The most frequent complications were: empyema with fistula (77%), empyema without fistula (15.5%) and pyopneumothorax (7.5%).

Length of stay	Variable	> 39 days	< 39 days
Age	<12 M	two (50%)	two (50%)
	>12M	7 (50%)	7 (50%)
lactation	Yea	3 (75%)	1 (25%)
	maternal	0.4	No 3 (21%)
	No	11 (78.5%)	
vaccinated	Yea	3 (60%)	two (40%)
	No	0.04*	6 (46.1%)
	No	7 (53.8%)	
Bacteria at the liquid	Yea	3 (60%)	two (40%)
	No	0.9	6 (46.1%)
	No	7 (53.8%)	
leukocytes	< 15,000/mm ³	two (20%)	8 (12.7%)
	> 15,000/mm ³	7 (87.2%)	1 (35.7%)
complications	Yea	9 (64.2%)	5 (35.7%)
	No	1 (25%)	3 (75%)

Table 4: Association in between time in internment and age, suckling maternal, vaccinated, bacteria in pleural fluid, leukocytosis and complications in children admitted to HPDB with pneumonia necrotizing in 2018.

The average in internment he was smaller in children vaccinated and in the what presented leukocytosis bottom the 15,000/mm³. it was found The Association statistically significant between these variables (P value = 0.04).

DISCUSSION

In the present study in six months, 18 cases of pneumonia were found necrotizing, number quite high When compared with

others studies performed: In Taiwan, in five years old, 21 cases of pneumonia necrotizing ⁽⁶⁾; In France, in 6 years old, 41 cases ⁽⁷⁾; In Boston, in 3 years old, 12 cases and in 4 years old, 40 cases ⁽⁸⁾. At complications and the treatment are consistent with that of other authors ⁽⁹⁻¹¹⁾. Although in case studies there is no can esteem the prevalence of the disease in our country, given the conditions in health of populations the incidence of the pneumonia.

CONCLUSIONS

Despite in to be one complication rare of the pneumonia acquired at community, in

children hospitalized what keeps fever and increase in bookmarks acute-phase infections despite adequate treatment, the diagnosis of necrotizing pneumonia must be considered.

ETHICAL CONSIDERATIONS

The study was approved by the Ethics Committee of the David Children's Hospital Bernardino in Luanda (ANGOLA). Anonymity was guaranteed, the confidentiality of data and samples from participants.

CONFLICTS IN INTEREST

None.

REFERENCES

1. NORTE A, SANTOS C, GAMBOA F, FERREIRA AJ, MARQUES A, LEITE C, et al. Pneumonia Necrotizante: Uma Complicação Rara. *Acta Medica Portuguesa*. 2012;25(1).
2. Chatha N, Fortin D, Bosma KJ. Management of Necrotizing Pneumonia and Pulmonary Gangrene: A Case Series and Review of the Literature. *Canadian Respiratory Journal*. 2014;21(4):239–45.
3. Ionescu MD, Popescu NA, Balan G, Marcu V, Enculescu A, Vatra L, et al. Evolutionary Particularities in a Case of Severe Pneumonia in Children– Case Report. *Maedica*. 2018;13(1):55.
4. Masters IB, Isles AF, Grimwood K. Necrotizing pneumonia: an emerging problem in children? *Pneumonia*. 2017;9(1):1–19.
5. Rovira G, Cooke EF, Mucavele H, Siteo A, Madrid L, Nhampossa T, et al. The Challenge of Diagnosing and Treating *Staphylococcus aureus* Invasive Infections in a Resource-limited Sub-Saharan Africa Setting: A Case Report. *Journal of Tropical Pediatrics*. 1 de Outubro de 2015;61(5):397–402.
6. Wong KS, Huang YC. Bronchopleural cutaneous fistula due to *Eikenella corrodens*. *J Pediatr (Rio J)*. Junho de 2005;81:265–7.
7. Lemaitre C, Angoulvant F, Gabor F, Makhoul J, Bonacorsi S, Naudin J, et al. Necrotizing Pneumonia in Children: Report of 41 Cases Between 2006 and 2011 in a French Tertiary Care Center. *The Pediatric Infectious Disease Journal*. Outubro de 2013;32(10):1146–1149.
8. Sawicki GS, Lu FL, Valim C, Cleveland RH, Colin AA. Necrotising pneumonia is an increasingly detected complication of pneumonia in children. *European Respiratory Journal*. 1 de Junho de 2008;31(6):1285– 91.
9. Krenke K, Sanocki M, Urbankowska E, Kraj G, Krawiec M, Urbankowski T, et al. Necrotizing Pneumonia and Its Complications in Children. *Adv Exp Med Biol*. 2015;857:9–17.
10. Macedo M, Meyer KF, Oliveira TCM. Necrotizing pneumonia in children submitted to thoracoscopy due to pleural empyema: incidence, treatment and clinical evolution. *J Bras Pneumol*. Junho de 2010;36(3):301–5.
11. Westphal FL, Lima LC de, Ferreira CA, Carvalho MA de. Tratamento cirúrgico de pneumonia necrosante: análise de quatro casos. *Jornal de Pneumologia*. 2000;26:1–4.