



BILATERAL PNEUMONIA WITH EMPYEMA AND PLEURAL EFFUSION

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ABSTRACT

Pneumonia is the single leading cause of mortality in children under five and is a major cause of child mortality in every region of the world, with most deaths occurring in sub-Saharan Africa and South Asia. Pneumonia kills more children under five than AIDS, malaria, and measles combined, yet increased attention in recent years have been on the latter diseases. Pneumonia is a form of acute respiratory tract infection (ARTI) that affects the lungs. When an individual has pneumonia, the alveoli in the lungs are filled with pus and fluid, which makes breathing painful and limits oxygen intake. Pneumonia has many possible causes, but the most common are bacteria and viruses. The most common pathogens are *Streptococcus pneumoniae*, *Haemophilus influenzae* type b (Hib), and respiratory syncytial virus RSV, the most common cause of viral pneumonia in children under two years. The populations most at risk for pneumonia are children under five years, people aged 65 or over, and people with pre-existing health problems. *Streptococcus pneumoniae* frequently colonizes the upper respiratory tract, Pneumonia is an important clinical and public health problem, Pneumonia is inflammation lower respiratory tract caused by an infection that affects the air sacs in the lungs, The air sacs may fill up with fluids or pus causing symptoms cough, fever chill and trouble breathing. Also Besides it is a common acute disease of the respiratory tract in childhood. It easy to occur in all seasons especially in winter and spring also it easy to recurrent attacks affects the growth and development of the child if the treatment is not completely taken by a patient, it may be caused by bacteria, viruses, or fungi in single or in both lungs. According to recent criteria developed by World Health Organization, the most of the deaths occur from severe pneumonia and management of severe childhood pneumonia requires early identification, prompt referral and the availability of intensive quality of care., Pneumonia potentially fatal infection and inflammation of the lower respiratory tract bronchioles and alveoli usually caused by inhaled bacteria and viruses have both properties *Streptococcus pneumoniae*, pneumococcus. The illness was frequently characterized by high fever, shortness of breath, rapid breathing, sharp chest pain, and a productive cough, a Lake of appetite and fatigue confusion vomiting and Nausea. In this case, we report reviewing the presentation and management of bilateral pneumonia involving the respiratory system. This report aims to alert the clinicians to the potential diagnosis of pneumonia treatment. In this case male 5years old, He diagnosed by bilateral pneumonia with empyema and pleural effusion.

INTRODUCTION

Acute respiratory tract infections are the most common illnesses in pediatrics and account for the majority of the pediatric emergency department, globally; bacterial Pneumonia is the most common form tends to be more serious than other types of pneumonia with symptoms that require medical care. Early symptoms dry cough, headache muscle pain, weakness short breathing, high fever, chest pain, develop abolish color in your lips and fingertips, physical examination and some tests, lung may be cracking, bubbling and rumbling sounds, blood tests, chest x-ray to look for the location and extent of inflammation, pulse oximeter to measure the oxygen level in your blood, CT scan of the chest, arterial blood gas test to measure the amount of oxygen in a blood sample take from artery, pleural fluid culture which remove small amount of fluid from around tissue that

surround the lung to analyze and identify bacteria causing the pneumonia., bronchoscopy sustains as the leading cause of death among under five years old children Although pneumonia is the most common cause of serious illness and death in young children worldwide, as clinicians, to infer an infectious pathological process in the lung from specific features of the history. However, many children who have suggestive clinical signs of pneumonia and who respond to appropriate antibiotics do not have any abnormalities on the chest radiograph .taken at the onset of the illness. In short, there is no single definition of pneumonia in childhood that is sensitive, specific, and can be widely implemented. Empyema can be caused by a variety of multidrug-resistant organisms, can vary in clinical severity, and is frequently associated with necrotizing pneumonia. The surgical outcome is also affected by

many factors, including the form of pulmonary infection, the severity of the disease, and the mode of primary treatment. Pleural effusion which in pediatric patients most commonly result in infection is an abnormal collection of fluid in the pleural space. Pleural effusion develops because of excessive filtration or defective absorption of accumulated fluid. Empyema may also result from causes other than bacterial pneumonia. Any process that introduces pathogens into the pleural space can lead to empyema. Empyema most commonly occurs in the setting of bacterial pneumonia. About 20-60% of all cases of pneumonia are associated with pneumonia effusion. Most often resolve without complication and they of little clinical significance. However, some effusions do not resolve these are called complicated effusion. The resulting infection and inflammatory response can proceed until the adhesive band form.

The infected fluid becomes located pus in the pleural space. Empyema affects up to 65,000 patient annually, with mortality of approximately associated, with respiratory failure and systemic sepsis, this occurs when the immune response and antibiotic are inadequate to control the infection.

Pathophysiology

Most cases of pneumonia are caused by aspiration of infective particles into the lower respiratory tract, pneumonia frequent start as an upper into the lower respiratory tract.

Bacteria can be inhaled into lung alveoli, once inside bacteria may invade the spaces between cells and between alveoli through connecting pores. This invasion triggers the immune system to send neutrophils.

The neutrophils engulf and kill the offending organisms and also release cytokines, causing a general activation of the immune system.

The neutrophils, bacteria, and fluid from surrounding blood vessels fill the alveoli and normal oxygen transportation.

Definition of pneumonia

Abnormal inflammation of the lung parenchyma caused by living infection agent or nonliving agent, for example, chemical pneumonitis, radiation, Symptoms is fever, chills, cough, chest pain, and trouble breathing. Pneumonia, the most common causes are bacterial infection or viral, in particular species of *Streptococcus* and *Mycoplasma*.

Anatomy and physiology

The major organ of the respiratory system each lung house's structures of both the conducting and respiratory zones. The main function of the lungs is to perform the exchange of oxygen and carbon dioxide with air from the atmosphere. To this end, the lungs exchange respiratory gases across a very large epithelial surface area about 70 square meters that are highly permeable to

gases. The lungs are pyramid-shaped, paired organs that are connected to the trachea by the right and left bronchi; on the inferior surface, the lungs are bordered by the diaphragm. The diaphragm is the flat, dome-shaped muscle located at the base of the lungs and thoracic cavity. The lungs are enclosed by the pleurae, which are attached to the mediastinum. The right lung is shorter and wider than the left lung, and the left lung occupies a smaller volume than the right. The cardiac notch is an indentation on the surface of the left lung, and it allows space for the heart. The apex of the lung is the superior region, whereas the base is the opposite region near the diaphragm. The costal surface of the lung borders the ribs. The mediastinal surface faces the midline. Each lung is composed of smaller units called lobes. Fissures separate these lobes from each other. The right lung consists of three lobes: the superior, middle, and inferior lobes. The left lung consists of two lobes: the superior and inferior lobes. A bronchopulmonary segment is a division of a lobe, and each lobe houses multiple bronchopulmonary segments. Each segment receives air from its own tertiary bronchus and is supplied with blood by its artery. Some diseases of the lungs typically affect one or more bronchopulmonary segments, and in some cases, the diseased segments can be surgically removed with little influence on neighboring segments. A pulmonary lobule is a subdivision formed as the bronchi branch into bronchioles. Each lobule receives its large bronchiole that has multiple branches. An interlobular septum is a wall, composed of connective tissue, which separates lobules from one another, Blood Supply and Nervous Innervation of the Lungs, The blood supply of the lungs plays an important role in gas exchange and serves as a transport system for gases throughout the body. Also, innervation by both the parasympathetic and sympathetic nervous system provides an important level of control through dilation and constriction of the airway. Blood Supply, The major function of the lungs is to perform gas exchange, which requires blood from the pulmonary circulation. This blood supply contains deoxygenated blood and travels to the lungs where erythrocytes, also known as red blood cells, pick up oxygen to be transported to tissues throughout the body. The pulmonary artery is an artery that arises from the pulmonary trunk and carries deoxygenated, arterial blood to the alveoli. The pulmonary artery branches multiple times as it follows the bronchi, and each branch becomes progressively smaller in diameter. One arteriole and an accompanying venule supply and drain one pulmonary lobule. As they near the alveoli, the pulmonary arteries become the pulmonary capillary network. The pulmonary capillary network consists of tiny vessels with very thin walls that lack smooth muscle fibers. The capillaries branch and follow the bronchioles and structure of the alveoli. It is at this point that the capillary wall meets the alveolar wall, creating the respiratory membrane. Once the blood is oxygenated, it drains from the alveoli by way of multiple pulmonary veins, which exit the lungs Nervous Innervation Dilation and constriction of the airway are achieved through nervous

control by the parasympathetic and sympathetic nervous systems. The parasympathetic system causes bronchoconstriction, whereas the sympathetic nervous system stimulates bronchodilation. Reflexes such as coughing, and the ability of the lungs to regulate oxygen and carbon dioxide levels, also result from this autonomic nervous system control. Sensory nerve fibers arise from the vagus nerve, and from the second to fifth thoracic ganglia. The pulmonary plexus is a region on the lung root formed by the entrance of the nerves at the hilum. The nerves then follow the bronchi in the lungs and branch to innervate muscle fibers, glands, and blood vessels. Pleura of the Lungs each lung is enclosed within a cavity that is surrounded by the pleura. The pleura is a serous membrane that surrounds the lung. The right and left pleurae, which enclose the right and left lungs, respectively, are separated by the mediastinum. The pleurae consist of two layers. The visceral pleura is the layer that is superficial to the lungs, and extends into and lines the lung fissures). In contrast, the parietal pleura is the outer layer that connects to the thoracic wall, the mediastinum, and the diaphragm. The visceral and parietal pleurae connect at the hilum. The pleural cavity is the space between the visceral and parietal layers. Parietal and Visceral Pleurae of the Lungs.

The pleurae perform two major functions: They produce pleural fluid and create cavities that separate the major organs. Pleural fluid is secreted by mesothelium cells from both pleural layers and acts to lubricate their surfaces. This lubrication reduces friction between the two layers to prevent trauma during breathing and creates a surface tension that helps maintain the position of the lungs against the thoracic wall. This adhesive characteristic of the pleural fluid causes the lungs to enlarge when the thoracic wall expands during ventilation, allowing the lungs to fill with air. The pleurae also create a division between major organs that prevents interference due to the movement of the organs, while preventing the spread of infection.

Case presentation

E. H Yessain 5 years old male child weight 14kg admitted to Mohammed Eldora hospital 17.9.2019 to PICU, a decrease of the level of conscious, difficulty of breathing, wheezing in the chest severe cough, Fatigue fever since 5 ago days, a revealed the past case history of grunting and dyspnea.

Very severe chest wall indrawing and hypoxemia spo2 peripheral capillary oxygen saturation 85%.

Investigation

Chest radiography

Thoracic ultrasound

Ultrasound-guided pleural effusion

And chest drain insertion chest tube

Thoracic CT respiratory tract infection that moves.

On examination HR170 bpm, RR76bpm, Temp39.8C high fever, BP 110/65mmhg. He was clinically baby dyspnea, irritable. diagnosis with severe bilateral pneumonia and empyema and pleural effusion, the chest tube was done, physical assessment skin moist, pale, integrity healthy nails color bluish, texture smooth, head and face symmetrical, eye symmetrical, white sclera.

Ears symmetrical auricles, nose and, nasal sinuses, patent nostrils, good ability to smell, mouth throat and tongue moist, pink, teeth regular spaced, tongue pink, throat enlarged tonsils, neck full range of motion, carotid pulsation 130beat/minute symmetrical, thorax and lung respiratory rate 60breath/minute, on inspection symmetrical chest, cough use accessory muscles, on percussion resonance, on auscultation abnormal breath sounds rhonchi, wheezes, crepitation, heart and blood vessels, apical pulse 125beat/minute regular, strong, BP90/50mmhg, peripheral pulse dorsal is pedis right and left normal, posterior tibial RT, LF normal, radial RT, LF normal, central line RT femoral, a abdomen soft and relaxed, motor response obeys commands, sensory response identify fine touch, speech clear.

Abdomen Inspection Palpation -smooth to touch -no lesion -no swelling -warm to touch -round and symmetrical -abdomen rises with inspiration in synchrony with chest -smooth to touch -no lesion -no swelling -warm to touch -round and symmetrical -abdomen rises with inspiration in synchrony with a chest. Lower Extremities Inspection -bilaterally symmetrical and equal -right foot has complete fingers -skin color is as same as the other parts of the body -bilaterally symmetrical and equal -right foot has complete fingers -skin color is as same as the other parts of the body Posterior Lower Inspection and normal skin color, The child's immunization was complete.

On admission on Examination auscultation, crepitation was present in both lung fields right upper zone and left upper zone and rhonchi were present on upper and middles side of left lung field, He was admitted in PICU, crepitation both lower lobe for which he received symptoms treatment, comprising bed rest and paracetamol suppository 300mg as needed, moreover, he biological assessment was done that confirmed the clinical diagnosis of bilateral pneumonia, 17.9.2019 he CBC white blood cell count was 36.000cell/mm3 with 69.7%neutrophils, HGB11.7g/dl, platelet count at 459.000/mm3, C -reactive protein was30mg/dl. Blood culture- negative.

After he presented progressive deterioration of the general condition and the onset of severe abdominal pain, chest u/s there is infiltration in lower lobe in both sided, pleural effusion, bilateral pneumonia lower lobe baby was intubated and connected to mechanical ventilation.

Pleural effusion chest CT was done bilateral cystic bronchi. Right side localized pleural effusion; pneumonia consolidation in the right middle lobe baby was treatment by clindamycin, ciprofloxacin, amikacin, and amphotericin. The urinalysis is used as a screening or diagnostic tool because it can help detect substances or cellular material in the urine associated with different metabolic and kidney disorders. It is ordered widely and routinely to detect any abnormalities that require follow up. date request: 20.9.2019 result normal value interpretation significant Color: Light Yellow Straw to Dark Yellow normal Transparency: Slightly Hazy Clear-Hazy NORMAL Reaction (pH): 6.5 5-8.5 NORMAL Glucose: Negative, NORMAL Protein Negative NORMAL Ketones: - Negative Specific gravity: 2.020 1.003-1.029 INCREASED Indicate presence of dehydration Pus cells: 10-12/hpf 2-3/hpf INCREASED Indicate presence of infection RBC 1-2/hpf Male: 0-3/hpf Female: 0- 5/hpf NORMAL Epithelial Cells Few Rare- moderate NORMAL

The Second biological assessment was done he21-9-2019 WBC7.6, PIT 544, N54%, HGB11.8.

ABG: PH: 7.43 / PCO2:29 / SAO2:92% / HCO3:19 / ABE:-4 / RBS 87 / Urea: 25

Na: 141 / K: 4.3 / CA: 10.2 / ALT: 15 / AST: 21 / ALK: 252 / Creat: 0.5. Radiological last CXR past removed chest tube show good inflation bilaterally with RT lower lobe rounded cavity LT lower lobe pneumonia

Procedure M.V, final diagnosis massive bilateral pneumonia pleural effusion, empyema, treatment G/S 500cc Rate 5cc/hr.

Milk75cc/3hrs and soft diet.

Clindamycin200mg/8hrsIV

Ciproflexacin160mg/12hr IV

Amikacin125mg/12hrs IV

Metronidazole 250mg/8hrs p.o.

Omperazol14mg /24hrsp.o

Spironolactone 8mg/8hrs p.o

Multivitamin 7cc /24hrs p.o

Fluconazole 85mg/24hrs p.o

Megadearm skin cream /12hrs, 29.9.2019 Microbiology tip of chest tube pseudomonas

Urea 25mg/dl / RBS83mg/dl / Na141 / K3.8 / ALT20U/L / AST19U/L

ALP257U/L - CK26U/L - LDH599 -

CREAT0.68MG/DL - CA 10

Sputum culture- negative - PT 14.5 - INR 1.05 - PTT43 - Activity97%

Vital signs BP103/64- TEMP39.4 -O2SAT98% - HR163bpm - RR36bpm

Ceftriaxon700mg/12hrsIV

Vancomycin210mg/8hrsIV

Klaricare 250mg syrup4cc/12hrs, ABG30.9-2019, PH: 7.48, PCO2:34, PO2:34, SO2:70%, ABE: 2mmol.CBC.WBC21.2, N78.4%

HGB13.6, PLT575, Urine culture- negative, the patient was diagnosed with following physical conditions: age-specific fast breathing, severe lower chest wall indrawing, grunting and hypoxemia, temperature (37.3 °C not fever), respiratory rate (76 breaths/min), SpO2 (82%; without O2) and Pulse rate (176 beats/min). SpO2 improved after providing a continuous oxygen supply by mechanical ventilation. With the provision of O2, SpO2 was 95%, 89%, 93%, and 95% respectively at the beginning. Respiratory rate was 55 breaths/min; the temp was 37.2° C.

There was age-specific fast breathing, tachycardia, and chest wall indrawing. And removed mechanical ventilation, Temp was 36.8° C, Respiratory rate was 44 breaths/min, SpO2 was 97% without O2 though the child was kept without O2 for overnight and Pulse rate was 157 beats/min.

There was mild chest indrawing but no age-specific fast breathing, no fever, and no hypoxemia. The Temp was 36.2° C, respiratory rate was 36 breaths/min, SpO2 was 95% without O2 and Pulse rate was 136 beats/min. The patient started improving clinically but there was age-specific fast breathing but no chest indrawing, no fever, no tachycardia, and no hypoxemia. The temp was 36.3° C. The respiratory rate was 41 breaths/min, SpO2 was 98% without O2 and pulse rate was 135 beats/min.

The patient was clinically improved and there was no hypoxemia, no fever, no age-specific fast breathing, and no tachycardia. The Temp was 36.5° C. The Respiratory rate was 38 breaths/min, Pulse rate was 136 beats/min, and SpO2 was 99% without O2.

The patient was clinically stable, and his Temperature was 36.3 ° C. Respiratory rate was 37 breaths/min, SpO2 was 100% without O2 and Pulse rate was 116beats/min.

As the child was clinically improved and there was no fever, no hypoxemia, no fast breathing, and no tachycardia, he was discharged.

ID \ M.R. No.:
 Patient Name:
 Date of Birth:
 Gender:

السلطة الوطنية الفلسطينية
 وزارة الصحة
 وحدة المختبرات وبنوك الدم

Microbiology

رقم العينة:
 مستشفى / رعاية أولية / عيادة:
 التشخيص:
 توقيع وختم الطبيب:
 التاريخ:
 Billet Pneumonia
 Rt Pleural effusion

Test

☐ M01 Acid Fast Stain	☐ M09 Pus C/S
☐ M02 Gram Stain	☒ M10 Sputum C/S
☐ M03 KOH	☐ M11 Sterility Culture
☐ M04 H.Pylori	☐ M12 Stool C/S
☐ M05 Blood C/S	☐ M13 Throat Swab C/S
☐ M06 C.S.F. C/S	☐ M14 Urine C/S
☐ M07 Fluids C/S " Others "	☐ M15 Vaginal Swab C/S
☐ M08 Fungi C/S	

Comment:
 Signature:
 Date:

ID \ M.R. No.: 92559
 Patient Name:
 Date of Birth:
 Gender:

السلطة الوطنية الفلسطينية
 وزارة الصحة
 وحدة المختبرات وبنوك الدم

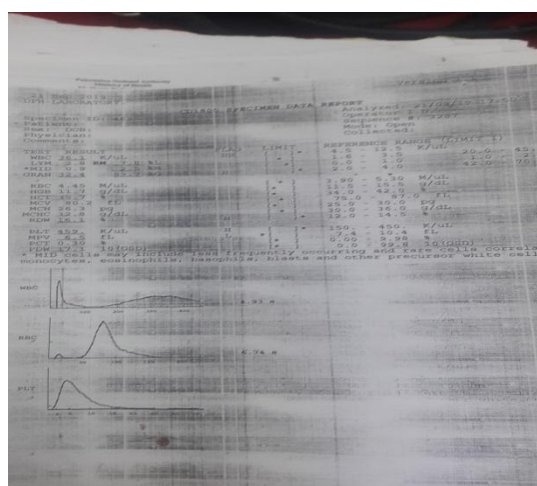
Microbiology

رقم العينة:
 مستشفى / رعاية أولية / عيادة:
 التشخيص:
 توقيع وختم الطبيب:
 التاريخ: 2019/9/22
 Negative Culture

Test

☐ M01 Acid Fast Stain	☐ M09 Pus C/S
☐ M02 Gram Stain	☐ M10 Sputum C/S
☐ M03 KOH	☐ M11 Sterility Culture
☐ M04 H.Pylori	☐ M12 Stool C/S
☒ M05 Blood C/S	☐ M13 Throat Swab C/S
☐ M06 C.S.F. C/S	☐ M14 Urine C/S
☐ M07 Fluids C/S " Others "	☐ M15 Vaginal Swab C/S
☐ M08 Fungi C/S	

Comment:
 Signature:
 Date: 2019/9/22



ID \ M.R. No.:
 Patient Name:
 Date of Birth:
 Gender:

السلطة الوطنية الفلسطينية
 وزارة الصحة
 وحدة المختبرات وبنوك الدم

Clinical Chemistry Request

رقم العينة:
 مستشفى / رعاية أولية:
 التشخيص:
 توقيع وختم الطبيب:
 التاريخ: 2019/9/22

Test

Urea	9.4	Ref 136
Cr	0.3	Ref 5.1
Ca	9.4	Ref 9.4
Cl	97	Ref 97

Comment:
 Signature:
 Date: 2019/9/22

ANTIBIOTIC

ID / M.R. No.: 1010101010

Patient Name: أحمد محمد

Date of Birth: 15/09/85

Gender: Male

السلطة الوطنية الفلسطينية
وزارة الصحة
وحدة المختبرات وبنوك الدم

Microbiology

رقم العينة: 33

مستشفى / رعاية أولية / عيادة: Bilqa

توقيع وختم الطبيب: Tip of nabe

التاريخ: 15/09/2019

Test

☐ M01 Acid Fast Stain

☐ M02 Gram Stain

☐ M03 KOH

☐ M04 H.Pylori

☐ M05 Blood CS

☐ M06 CSF CS

☐ M07 Fluids CS - Others

☐ M08 Fungi CS

☒ M09 Pw CS

☒ M10 Sputum CS

☐ M11 Sterility Culture

☐ M12 Stool CS

☐ M13 Throat Swab CS

☐ M14 Urine CS

☐ M15 Vaginal Swab CS

Comment: Tip of nabe

Signature: Tip of nabe

Date: 15/09/2019

PALESTINIAN NATIONAL AUTHORITY
MINISTRY OF HEALTH
LABORATORIES & BLOOD BANKS
DIRECTORATE

السلطة الوطنية الفلسطينية
وزارة الصحة
مركز المختبرات وبنوك الدم

Microbiology Culture & Sensitivity Report

Donor: 1

Result Code: 1

Antibiotic

ANTIBIOTIC	1	2	3
Amikacin			
Gentamicin			
Tetracycline			
Clotrimazole			
Chloramphenicol			
Septrin			
Nalidixic Acid (Negrom)			
Ceftriaxone			
Acetaminophen			
Aspirin			
Paracetamol			
Penicillin			
Vancomycin			
Fluconazole			
Trimethoprim			
Sulfamethoxazole			

Result

Result	1	2	3
Resistant			
Intermediate			
Sensitive			

Lab. Comment: 1

Date: 15/09/2019

Signature: Tip of nabe

Mohammed El-Dorra Ped. Hospital Lab

GAZA

Sample ID: 1

Patient ID: 1010101010

Name: ABRAHIM

Sample Type: SERUM

Category: 1

Collection Date: 01-Oct-2019

Age: 15

Ref. Dr: 1

Sample Remark: 1

Location: 1

Dr No	Test	Result	Flag	Normal Range
1	ALT	24 U/L		0-41 U/L
2	CREAT	0.88 mg/dL	F	0.30-0.70 mg/dL
3	ALP	254 U/L		0-727 U/L
4	CK	16 U/L	FL	1-18-174 U/L
5	LDH	580 U/L	FM	0-480 U/L
6	AST	19 U/L		0-40 U/L

PALESTINIAN NATIONAL AUTHORITY
MINISTRY OF HEALTH
General Directorate of Hospitals
El-Dorra Pediatric Hospital

السلطة الوطنية الفلسطينية
وزارة الصحة
الإدارة العامة للمستشفيات
مستشفى مستشفى الدرة للأطفال

إف

أنا وفي اسم المريض/ أحمد محمد، أشرح حالة المريض لي من قبل طبيب العناية المركزة. و أوافق على عمل كل ما يلزم لحالته من عمليات صغرى (تركيب كاتيتولا وتركيب وريد مركزي وقسطرة بولية و تركيب الأنبوب رئاسي وضعه على جهاز التنفس الصناعي تركيب الأنبوب صدري إذا لزم وإعطائه العقاقير الطبية اللازمة). وأعلم أنه قد يرافق هذه الإجراءات مضاعفات طبية والتي قد تحتاج للمتابعة إذا لزم الأمر وليس لدي أي اعتراض على ذلك.

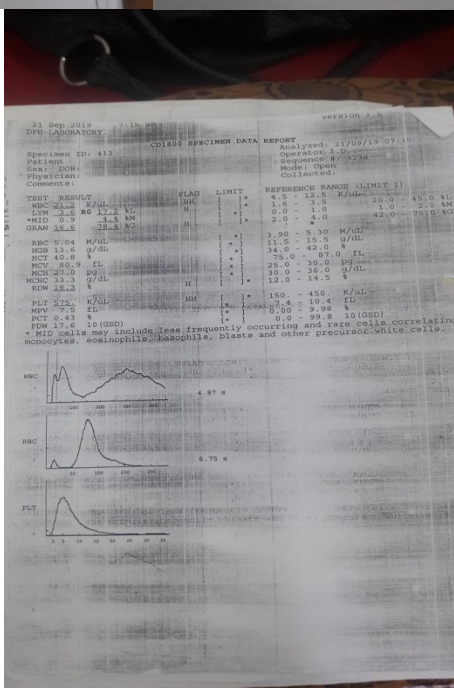
الطبيب المعالج/ أحمد محمد / التوقيع/ أحمد محمد

الحكيم/ أحمد محمد / التوقيع/ أحمد محمد

اسم وفي الامر/ أحمد محمد

صلة القرابة بالمريض/ أحمد محمد

التوقيع/ أحمد محمد



Patient Name :
 Date of Birth : 6/.....
 Gender :
 وزارة الصحة
 وحدة المختبرات وبنوك الدم
 Microbiology
 رقم العينة :
 مستشفى / رعاية أولية / عيادة :
 القسم :
 توقيع وختم الطبيب : Bilal M.
 التاريخ : ٢٠١٩ / ٩ / ١٧
 Test

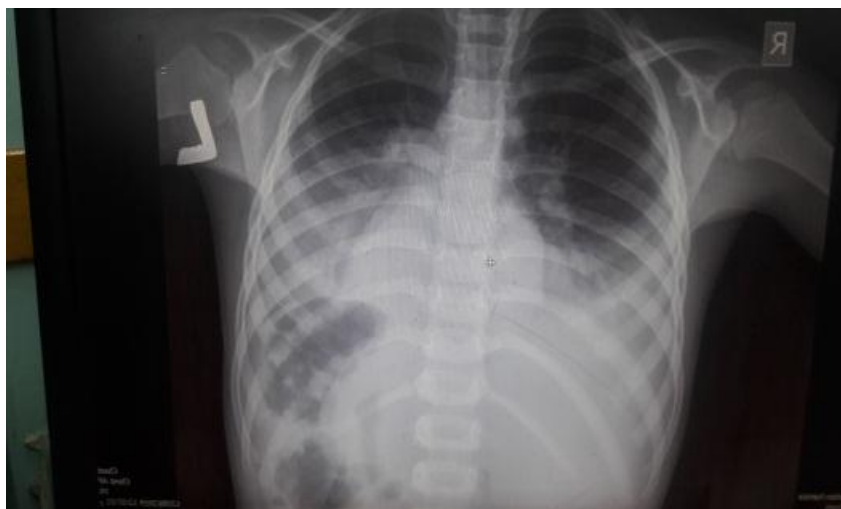
☐ M01 Acid Fast Stain	☐ M09 Pus C/S
☐ M02 Gram Stain	☐ M10 Sputum C/S
☐ M03 KOH	☐ M11 Sterility Culture
☐ M04 H.Pylori	☐ M12 Stool C/S
☐ M05 Blood C/S	☐ M13 Throat Swab C/S
☐ M06 C.S.E.C/S	☒ M14 Urine C/S Negative Cult
☐ M07 Fluids C/S * Others "	☐ M15 Vaginal Swab C/S
☐ M08 Fungi C/S	

 Comment :
 Signature :
 Date : ٢٠١٩ / ٩ / ١٧

DISCUSSION

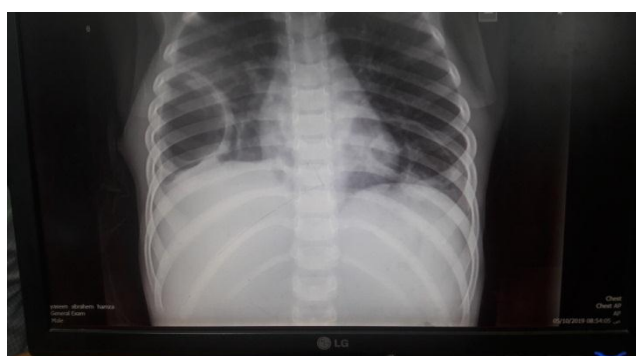
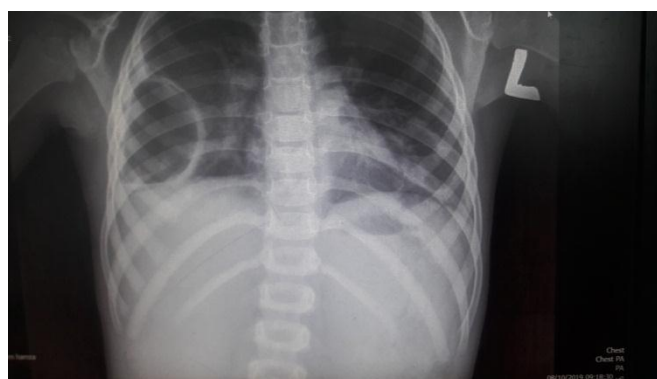
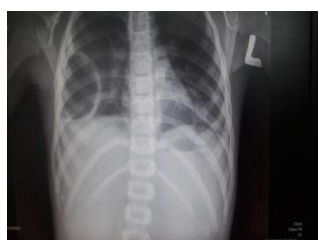
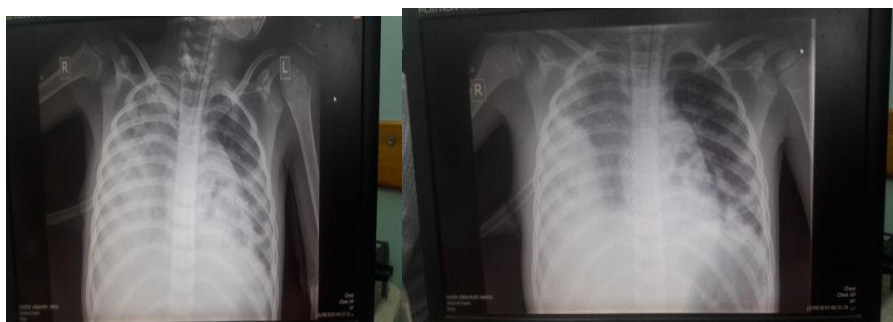
Management of severe bilateral pneumonia and empyema. In most countries, children with severe bilateral pneumonia need to be referred due to difficulty breathing, hypoxemia, stridor, like danger signs.

Chest radiograph showed opacity of the left rib base erasing the totality of the diaphragmatic cupola filling the pleural cul-de-sac with a pleural band.



Excavated pneumonia in the lower left lobe (with a pleural effusion of 3 cm) Computed tomography scans of the chest showing a significant parenchymal condensation and shrinking of the left basal pyramid (with a fluid collection of the convex, suggesting a

pleural empyema on the left Chest radiograph showing the clearing of pneumonia and empyema the most common cause of community-acquired bacterial pneumonia is Streptococcus pneumonia.



The finding of gram-positive diplococci in the blood is consistent with a pneumococcal disease as well. Approximately 25 to 30% of patients with pneumococcal pneumonia will have positive blood cultures. Group A streptococcus is another possible organism because it can cause bacteremia pneumonia and can appear as a gram-positive diplococci. However, in blood culture, group A streptococci are much more likely to be present as gram-positive cocci in chains. The two streptococci are easily distinguished by the fact that *S. pneumonia* is alpha-hemolytic and bile soluble whereas group A streptococcus is beta-hemolytic and bile insoluble but bacitracin susceptible.

The Determination of the precise etiology of pneumonia is difficult due to the lack of sensitive and specific tests. Many clinicians treat pneumonia empirically with minimal laboratory or radiographic evaluation and thus up to 80% of non-bacterial pneumonia may be treated with antibiotics. This approach is satisfactory when clinical risk is deemed below.

According to the WHO revised treatment guideline, child age 2–59 months with cough and/or difficulty breathing with fast breathing and/or chest indrawing, pneumonia should be treated with oral amoxicillin and home advice and child age 2–59 months with cough and difficulty breathing with general danger signs not able to drink, persistent vomiting, lethargic or unconscious, stridor in a calm child or severe malnutrition, severe pneumonia or very severe disease should be treated with first dose antibiotic and referral to facility for injectable antibiotic supportive therapy According to the WHO United Nations Children's Fund (UNICEF) joint statement, management of pneumonia in community settings recommends the training and deployment of Community Health Workers (CHWs) as an important strategy to increase access to quality care for pneumonia Research showed that educated community members could be trained to detect and manage fast breathing pneumonia in their communities, Large-scale studies showed that the sensitivity, specificity, and overall agreement rates in pneumonia diagnosis and treatment were high among CHWs who had intensive basic training and routine supervision. Thus, the need for referrals to higher-level facilities is decreased and the probability of hospitalization and thus the risk of nosocomial and injection-borne diseases are reduced.

Patients typically present with common symptoms of pneumonia such as fever, cough, shortness of breath, and chest pain but can also rapidly develop hemoptysis, septic shock, and respiratory failure.

The clinical presentation of pediatric empyema requiring thoracoscopy is diverse. Empyema can be caused by a variety of multidrug-resistant organisms, can vary in clinical severity, and is frequently associated with necrotizing pneumonia. The surgical outcome is also affected by many factors, including the form

of pulmonary infection, the severity of the disease, and the mode of primary treatment.

Since 1990, an increase in necrotizing pneumococcal pneumonia has been observed in children, where pneumococcal vaccination is not widely implemented. Necrotizing pneumonia represents a more severe form of pulmonary infection and can be caused by a variety of microorganisms, such as *Streptococcus pneumonia* and methicillin-resistant *S. aureus*. Necrotizing pneumonia occurred in 33% of their patients and was found to significantly increase post-surgery stay if patients also had a positive intraoperative culture. In our cohort, necrotizing pneumonia was noted in 36.5% of empyema requiring thoracoscopy, and 20% of these patients developed complications after the operation, including pneumatocele, pneumothorax and bronchopleural fistula. In addition to a higher complication rate, necrotizing pneumonia is also associated with a longer duration of postoperative stay, probably because of the severity of disease and the types of complications required a longer period of treatment.

The ideal management of necrotic lung tissue caused by necrotizing pneumonia during thoracoscopy remains unclear. Although some authors reported successful results in removing all necrotic lung tissue, Mergenthaler and colleagues' report showed that 7 of 33 surgical patients (21%) had diffuse necrotizing pneumonia requiring lobectomy or pulmonary resection and that prolonged air leaks developed in 4 children (57%). In our patients, we preserved the necrotic lung tissue during the operation. Most of our patients had small pneumatocele after the operation, but this resolved spontaneously within 1 to 2 months with excellent results. We suggest that the removal of necrotic tissue is unnecessary during thoracoscopy.

The optimal primary management of pediatric empyema remains controversial. This study revealed that the duration of the operation and postoperative hospitalization were longer in patients with preoperative chest tube drainage than in patients who underwent thoracoscopy as the primary treatment. Many studies have also demonstrated that primary chest tube

Drainage is associated with prolonged fever, pleural drainage, and hospital stay when compared with primary operative therapy. This can probably be attributed to ineffective drainage and rapid characteristic changes of the retained empyema fluid. The median duration of chest tube drainage before thoracoscopy was 6 days in our patients. Prolonged chest tube drainage not only increased the duration of hospitalization but also made the empyema more fibrotic and the operation more difficult. In our patients, the main reason for prolonged chest tube drainage before thoracoscopy is that many of these patients had been referred from hospitals where pediatric thoracic surgeons were not available. Chest tube drainage was the only method of treatment.

Preoperative ICU admission is also an important predictor of prolonged postoperative hospital stay. The causes of preoperative ICU admission included respiratory distress, unstable general conditions, or the presence of organ failure, such as hemolytic uremic syndrome. Patients admitted preoperatively to the ICU usually have more severe forms of illnesses that may be associated with other comorbidities. Although necrotizing pneumonia also represents a severe form of illness, there is no significant correlation between preoperative ICU admission and the presence of necrotizing pneumonia.

The timing of surgical treatment was reported as an important prognostic factor for treating pediatric empyema. Previous studies showed that a delay of more than 4 days between diagnosis of and surgery for pediatric empyema was significantly correlated with more frequent surgical difficulties, longer hospitalization, and more postoperative complications. However, our results showed that preoperative empyema more than 4 days was associated with a longer total hospital stay only in univariate analysis. We explain that the diagnosis and the true onset of empyema in this retrospective study varied widely, making the estimation of duration of preoperative empyema inconsistent.

In comparison with other studies, the median postoperative hospital stay in our patients (13 days) is longer, although the median duration of postoperative fever and chest tube drainage are comparable. The possible reasons include that our patients tended to stay in the hospital longer for completion of intravenous antibiotics treatment after the subsidence of fever and removal of the chest tube. Other factors, such as the difference in disease severity and empyema stage at the time of thoracoscopy, may also play roles.

Management of pneumonia, maintain airway and O₂ saturation above 93%, promote nutrition and hydration, provide small, frequent, high-carb, high protein meals and administer antibiotics.

Psychosocial

Although initially there may not be many psychosocial aspects to pneumonia, it is susceptible to fatigue which can be physically and mentally exhausting. This can lead to depression, emotional stress, Emotional and behavioral problems, anxiety and depression, Eating disorders; Cognitive disorders Behavioral and conduct disorders, Non-adherence, Psychological interventions by *emotional support family*. And general lethargy is susceptible to getting infections such as pneumonia it can also further impact her psychologically dealing with those infections as her quality of life may be significantly reduced address these issues to a health professional if they are ever in distress as psychosocial factors may lead to non-compliance in their treatment.

Psychosocial issues

Can lead manifest as anxiety, depression, fatigue and withdrawal from family and social life, individual, can require extensive psychosocial support to deal with this issue, May of the psychosocial issues individuals, the experience is related to dyspnea, shortness of breath lead to anxiety.

Ethical and legal malpractice related to the case

Maintaining safe care is the first ethical and legal duty of any hospital, and all health professionals. Setting and meeting its staffing standards is a hospital's regulatory and moral duty. Moreover, as researchers produce the data needed to ensure safe patient care and as these data are introduced as evidence in malpractice cases, there will be more pushback from courts as judges and juries react to a cold calculus of profits over human life. Indeed, in many instances, it may be the healthcare executives who make staffing.

PREVENTING PNEUMONIA

The US Center for Disease Control (CDC) notes that there are six vaccines available that can help prevent some upper respiratory bacteria and viruses from causing pneumonia. These vaccines are:

Haemophilus influenza type b (Hib,) Influenza (flu), Measles, Pertussis (whooping cough), Pneumococcus, Varicella (chickenpox)

The CDC also recommends two vaccines for adults over the age of 65: pneumococcal conjugate vaccine (PCV13) followed by pneumococcal polysaccharide vaccine (PPSV23) a year later. If the PPSV23 has already been received at any point, a dose of PCV13 should be administered at least one year later.

DIAGNOSING AND TREATING PNEUMONIA

If doctors suspect pneumonia, they should perform a full physical examination. Doctors will listen to your lungs to detect, any unusual noises when breathing like crackling, bubbling, or wheezing.

A chest x-ray is the most common diagnostic test for pneumonia. It allows doctors to see whether the lungs are inflamed or if they can contain fluid, although it does not provide information on whether the infection is caused by bacteria or a virus. Doctors may also order a blood test to determine the type of infection.

Bacterial pneumonia is treated with antibiotics, usually in pill form. Viral pneumonia will not respond to antibiotics and is instead treated with antiviral medicine.

If pneumonia progresses rapidly or becomes too serious, patients may need to be hospitalized so doctors can monitor oxygen levels.

Sometimes doctors do make mistakes. They can misread the results of X-rays or blood tests, leading to the wrong medications being prescribed. They can also completely

fail to order blood tests or X-rays on the assumption that the pneumonia is a different illness. Pneumonia does share symptoms with several other conditions, such as: Influenza, The same cough, chills, and fever that come with pneumonia are often symptoms of the flu as well. However, the flu, unlike pneumonia, often comes with a runny nose and sore throat. Sometimes pneumonia can be a complication of the flu. The doctor may still be trying to treat the flu when it has already turned to pneumonia. Unfortunately, most flu treatments do not work on pneumonia, allowing the illness to progress untreated.

Chronic obstructive pulmonary disease, or COPD, is a term that covers different lung conditions resulting from damage to a person's airways that make it difficult to breathe. Emphysema is one type of COPD; chronic asthmatic bronchitis is another. Symptoms of COPD include coughing, chest tightness and wheezing. Aside from the discomfort and difficulty breathing, COPD and pneumonia aren't all that similar. However, since COPD is often a result of years of smoking, doctors might misdiagnose a chronic smoker with COPD rather than pneumonia. Again, this can leave pneumonia untreated as it grows worse.

Acute bronchitis does have many of the same symptoms of pneumonia. It is caused by a sudden inflammation in the airways of the lungs and follows a viral respiratory infection. Symptoms include fever, tiredness, and cough. Chest discomfort is also common in acute bronchitis. Without an X-ray and blood tests, a doctor may not be able to tell whether the patient is suffering from acute bronchitis or pneumonia.

Misdiagnosis of pneumonia will delay treatment and can result in long-term disability or death. Despite the serious potential consequences of misdiagnosis, pneumonia is misdiagnosed at an alarming rate, even among patients who are readmitted to the hospital after suffering from pneumonia in the recent past.

Misdiagnosis of pneumonia is common because the symptoms are similar to many other less serious illnesses. Because respiratory illnesses are more common in the winter, and because pneumonia mimics many of those same conditions, errant pneumonia diagnosis is, even more, likely during this time of year. Pneumonia is the second most misdiagnosed condition leading to readmission after a previous hospitalization, second only to congestive heart failure. Blood tests and sputum cultures can be helpful to make the diagnosis of pneumonia. The diagnosis should be confirmed by X-ray, and if pneumonia is not evident, antibiotics should be discontinued and other causes of the patient's symptoms should be sought. In healthcare clinics outside of the hospital setting, the diagnosis is often made solely on clinical symptoms and a physical examination.

One of the most effective ways to diagnose pneumonia is by chest x-ray. However, a chest x-ray in a person with pneumonia does not always have the characteristic "infiltrate" if it is early in the course of the illness. Sometimes, the infiltrate may be in a portion of the lung that is not easily seen by standard x-ray, and other patients may have congestive heart failure or scarring in their lungs, which can mimic pneumonia. Therefore, it is important to distinguish pneumonia from these other problems because the treatment is very different.

When a doctor misdiagnoses the patient's condition due to medical negligence, the patient is exposed to medications and treatments that are not relevant to his condition, thus worsening his complications and risking his life. Such acts of medical negligence must be legally addressed with a medical malpractice lawsuit so that the patient can be compensated for his pain and suffering.

CONCLUSION

IN the countries lower respiratory tract infection is usually the main cause of death .the most common causes of the disease are bacterial of which streptococcus. Another pathogen including anaerobic bacteria, staphylococcus aureus, homophiles influenza, parrot fever, chlamydia trichromatic klebsiella pneumonia and other gram-negative bacillus mycoplasma pneumonia is a particularly common people common in spring.

The main pathogens of pneumonia in infants and children are viruses. respiratory syncytial virus, adenovirus, influenza virus, with the spired use of antibiotics and the change in the body responsiveness, low immune function in children and imperfect defense function of respiratory.

The System, pediatric pneumonia has become one of the most common diseases in children; morbidity and mortality are far higher than those in young adults.

The incidence of pneumonia in children is rapid, respiratory are obvious and the condition of the disease is progressed rapidly and other complications can occur.

Infantile pneumonia is the main anti-infection, and treatment of the complications.

At the time of anti-infection, and a wide range of the antimicrobial spectrum, less drug-resistant bacteria and how the toxicity of liver and kidney are used, the combined use of two kinds of broad-spectrum antibiotics such as cephalosporins, macrolides, and antiviral drug, and give O₂ therapy, nutritional support.

Correction of the acid-base balance and electrolyte disturbance in some children activity dealing with the complication.

Recommendations

Increase caretakers' recognition of pneumonia signs through Extensive health communication activities by strengthening the third Component of IMCI (improving family and community practice Antibiotics improve outcomes in those with bacterial Pneumonia. Antibiotic choice depends initially on the characteristics Of the person, such as age, underlying health, and the location The infection was acquired.

Stay away from people who have colds, the, or other respiratory tract infections.

If you haven't had measles or chickenpox or if you didn't get Vaccines against these diseases, avoid people who have them Preventive measures are under observation to avoid contaminated food, drinks purified water.

Paracetamol

Group: non-opioid analgesic General information

Paracetamol is a synthetic derivative of *p*-aminophenol with analgesic and antipyretic activity but no anti-inflammatory action. Its plasma half-life is about 2 hours. It is extensively metabolized in the liver and subsequently excreted in the urine.

Clinical information

Uses

Symptomatic relief of mild to moderate pain.

Dosage and administration

Adults: 0.5-1 g repeated, as necessary, every 4-6 hours to a maximum of 4 g daily.

Children: 20-30 mg/kg daily in divided doses.

Dosage should be reduced in patients with renal failure.

Suppositories are available for patients unable to take the drug orally.

Treatment should not be continued for more than 5 days except on medical advice.

Contraindications

- Hypersensitivity to paracetamol.
- Repeated administration is contraindicated in patients with hepatic insufficiency.

Adverse effects

At doses within the therapeutic range paracetamol is usually well-tolerated.

Hypersensitivity, dermatological reactions, neutropenia, and thrombocytopenic purpura have rarely been reported.

Overdosage

In overdosage paracetamol is dangerously hepatotoxic; potentially fatal hepatic necrosis can occur after ingestion of as little as a single dose of 10-15 g. Signs of mild gastrointestinal irritation are commonly followed 2 days later by anorexia, nausea, malaise, abdominal pain, progressive evidence of liver failure and, ultimately, hepatic coma.

Ceftriaxone

Third-generation antibiotics are used to treat organisms that tend to be resistant to many other antibiotics. Due to emergent resistance, ceftriaxone should not be used for the treatment of Enterobacter infections. Before using ceftriaxone, it is important to determine the susceptibility of the bacteria.¹ If sepsis is being considered, empiric therapy may be initiated before susceptibility testing.

Medical uses include

Lower respiratory tract infections

Acute bacterial otitis media

Skin and skin structure infections

Urinary tract infections

Uncomplicated gonorrhea

Pelvic inflammatory disease

Bacterial sepsis

Intra-abdominal infections

Meningitis

Surgical prophylaxis

Lyme disease

Adverse effects

Although generally well-tolerated, the most common adverse reactions associated with ceftriaxone are changes in white blood cell counts, local reactions at the site of administration, rash, and diarrhea.

Incidence of adverse effects greater than 1%:

Eosinophilia (6%)

Thrombocytosis (5.1%)

Elevations in liver enzymes (3.1–3.3%)

Diarrhea (2.7%)

Leukopenia (2.1%)

Elevation in BUN (1.2%)

Local reactions—pain, tenderness, irritation (1%)

Rash (1.7%)

Some less frequently reported adverse events (incidence < 1%) include phlebitis, itchiness, fever, chills, nausea, vomiting, elevations of bilirubin, elevations in creatinine, headache and dizziness.

Ceftriaxone may precipitate in bile, causing biliary sludge, biliary pseudolithiasis, and gallstones, especially in children. Hypoprothrombinaemia and bleeding are specific side effects. Haemolysis is reported. It has also been reported to cause post-renal failure in children. Like other antibiotics, ceftriaxone use can result in Clostridium difficile-associated diarrhea ranging from mild diarrhea to fatal colitis.

Contraindications

Ceftriaxone should not be used in those with an allergy to ceftriaxone or any component of the formulation. Although there is negligible cross-reactivity between penicillin and third-generation cephalosporin, caution should still be used when using ceftriaxone in penicillin-sensitive patients. Caution should be used in people who have had previous severe penicillin allergies. It should not be used in hyperbilirubinemia neonates, particularly those who are premature because ceftriaxone is reported

to displace bilirubin from albumin binding sites, potentially causing bilirubin encephalopathy. Concomitant use with intravenous calcium-containing solutions/products in neonates (≤ 28 days) is contraindicated¹ even if administered through different infusion lines due to rare fatal cases of calcium-ceftriaxone precipitations in neonatal lungs and kidneys.

Vancomycin

It is used to treat serious bacterial infections. It is an antibiotic that works by stopping the growth of bacteria.

This medication is usually given by injection into a vein. However, the form in vials may also be given by mouth to treat a certain intestinal condition (colitis) that may rarely happen after treatment with antibiotics. This condition causes diarrhea and stomach/abdominal discomfort or pain. When vancomycin is taken by mouth, it stays in the intestines to stop the growth of bacteria that cause these symptoms.

This antibiotic treats only bacterial infections. It will not work for viral infections (such as common cold, flu). Using any antibiotic when it is not needed can cause it to not work for future infections.

Pain, redness, and tenderness at the injection site may occur. If this medication is injected too fast, a condition is known as "red man syndrome" may occur. Tell your doctor promptly if you have symptoms such as flushing of the upper body, dizziness, or muscle pain/spasms of the chest and back. If any of these effects last or get worse, tell your doctor or pharmacist promptly.

Remember that your doctor has prescribed this medication because he or she has judged that the benefit to you is greater than the risk of side effects. Many people using this medication do not have serious side effects.

Tell your doctor right away if you have any serious side effects, hearing problems (such as ringing in the ears, hearing loss), signs of kidney problems (such a change in the amount of urine), easy bleeding/bruising, vision changes (such as blurred vision, decreased vision).

Use of this medication for prolonged or repeated periods may result in oral thrush or a new yeast infection. Contact your doctor if you notice white patches in your mouth, a change in vaginal discharge, or other new symptoms.

Precautions

Before using vancomycin, tell your doctor or pharmacist if you are allergic to it; or if you have any other allergies. This product may contain inactive ingredients, which can cause allergic reactions or other problems. Talk to your pharmacist for more details.

Before using this medication, tell your doctor or pharmacist your medical history, especially of: kidney problems, hearing problems, stomach/intestinal problems.

This drug may make you dizzy. Alcohol or marijuana (cannabis) can make you dizzier. Do not drive, use machinery, or do anything that needs alertness until you can do it safely. Limit alcoholic beverages. Talk to your doctor if you are using marijuana (cannabis).

Vancomycin may cause live bacterial vaccines (such as typhoid vaccine) to not work as well. Do not have any immunizations/vaccinations while using this medication unless your doctor tells you to.

Before having surgery, tell your doctor or dentist about all the products you use (including prescription drugs, nonprescription drugs, and herbal products).

Interactions

Drug interactions may change how your medications work or increase your risk for serious side effects. This document does not contain all possible drug interactions. Keep a list of all the products you use (including prescription/nonprescription drugs and herbal products) and share it with your doctor and pharmacist. Do not start, stop, or change the dosage of any medicines without your doctor's approval.

Clarithromycin

Is a macrolide antibiotic that fights bacteria in your body. Clarithromycin is used to treat many different types of bacterial infections affecting the skin and respiratory system. Clarithromycin is also used together with other medicines to treat stomach ulcers caused by *Helicobacter pylori*.

Clarithromycin is effective against susceptible bacteria causing the following infections:

Tonsillitis,
Throat infections,
Laryngitis,
Bronchitis,
Pneumonia and skin infections.

Middle ear Side effects of Clarithromycin include
Gastrointestinal (GI) effects, general.

Abnormal taste.

Diarrhea.

Nausea.

Vomiting.

Elevated blood urea nitrogen (BUN)

Abdominal pain.

Rash

Amikacin

Uses

This medication is used to prevent or treat a wide variety of bacterial infections. Amikacin belongs to a class of drugs known as aminoglycoside antibiotics. It works by stopping the growth of bacteria.

Side Effects

Nausea, vomiting, stomach upset, or loss of appetite may occur. Pain/irritation/redness at the injection site may rarely occur. If any of these effects persist or worsen, tell your doctor or pharmacist promptly.

Remember that your doctor has prescribed this medication because he or she has judged that the benefit to you is greater than the risk of side effects. Many people using this medication do not have serious side effects.

Tell your doctor right away if you have any serious side effects, numbness/tingling, muscle twitching or weakness, seizure.

Precautions

Before using amikacin, tell your doctor or pharmacist if you are allergic to it; or to other aminoglycoside antibiotics (such as gentamicin, tobramycin); or if you have any other allergies. This product may contain inactive ingredients (such as sulfites), which can cause allergic reactions or other problems. Talk to your pharmacist for more details.

Before using this medication, tell your doctor or pharmacist your medical history, especially of: cystic fibrosis, hearing problems (including deafness, decreased hearing), kidney problems, low blood minerals (including potassium, magnesium, calcium), myasthenia gravis, Parkinson's disease.

Amikacin may cause live bacterial vaccines (such as typhoid vaccine) to not work as well. Do not have any immunizations/vaccinations while using this medication unless your doctor tells you to.

Before having surgery, tell your doctor or dentist about all the products you use (including prescription drugs, nonprescription drugs, and herbal products).

Interactions

Drug interactions may change how your medications work or increase your risk for serious side effects. This document does not contain all possible drug interactions. Keep a list of all the products you use (including prescription/nonprescription drugs and herbal products) and share it with your doctor and pharmacist. Do not start, stop, or change the dosage of any medicines without your doctor's approval.

Other medications that may affect the kidneys or hearing may increase the risk of kidney damage or hearing loss if taken with amikacin. Some examples amphotericin B, cidofovir, cisplatin, polymyxin B, tobramycin, cephalosporins such as cephazolin, nonsteroidal anti-inflammatory drugs (NSAIDs) such as ibuprofen, among others.

Although most antibiotics are unlikely to affect hormonal birth control such as pills, patch, or ring, a

few antibiotics (such as rifampin, rifabutin) can decrease their effectiveness. This could result in pregnancy. If you use hormonal birth control, ask your doctor or pharmacist for more details.

Ciprofloxacin

Uses

This medication is used to treat a variety of bacterial infections. Ciprofloxacin belongs to a class of drugs called quinolone antibiotics. It works by stopping the growth of bacteria.

This antibiotic treats only bacterial infections. It will not work for virus infections (such as common cold, flu). Using any antibiotic when it is not needed can cause it to not work for future Side Effects Nausea, diarrhea, dizziness, lightheadedness, headache, or trouble sleeping may occur. If any of these effects persist or worsen, tell your doctor or pharmacist promptly.

Remember that your doctor has prescribed this medication because he or she has judged that the benefit to you is greater than the risk of side effects. Many people using this medication do not have serious side effects.

Tell your doctor right away if you have any serious side effects, unusual bruising/bleeding, signs of a new infection (such as new/persistent fever, persistent sore throat), signs of kidney problems (such as change in the amount of urine, red/pink urine), signs of liver problems (such as unusual tiredness, stomach/abdominal pain, persistent nausea/vomiting, yellowing eyes/skin, dark urine).

Get medical help right away if you have any very serious side effects, including: severe dizziness, fainting, fast/irregular heartbeat, signs of a tear/break in the main blood vessel.

Precautions

Before taking ciprofloxacin, tell your doctor or pharmacist if you are allergic to it; or to other quinolone antibiotics such as norfloxacin, gemifloxacin, levofloxacin, moxifloxacin, or ofloxacin; or if you have any other allergies. This product may contain inactive ingredients, which can cause allergic reactions or other problems. Talk to your pharmacist for more details.

Before using this medication, tell your doctor or pharmacist your medical history, especially of: diabetes, heart problems (such as recent heart attack), joint/tendon problems (such as tendonitis, bursitis), kidney disease, liver disease, mental/mood disorders (such as depression), myasthenia gravis, nerve problems (such as peripheral neuropathy), seizures, conditions that increase your risk of seizures (such as brain/head injury, brain tumors, cerebral atherosclerosis), blood vessel problems (such as aneurysm or blockage of the aorta or other blood vessels,

Interactions

Drug interactions may change how your medications work or increase your risk for serious side effects. This document does not contain all possible drug interactions. Keep a list of all the products you use (including prescription/nonprescription drugs and herbal products) and share it with your doctor and pharmacist. Do not start, stop, or change the dosage of any medicines without your doctor's approval.

Some products that may interact with this drug "blood thinners" (such as acenocoumarol, warfarin), strontium.

Many drugs besides ciprofloxacin may affect the heart rhythm (QT prolongation), including amiodarone, dofetilide, quinidine, procainamide, sotalol, among others.

Clindamycin

Uses

Clindamycin is used to treat a wide variety of bacterial infections. It is an antibiotic that works by stopping the growth of bacteria.

This antibiotic treats only bacterial infections. It will not work for virus infections (such as common cold, flu). Using any antibiotic when it is not needed can cause it to not work for future infections.

Side Effects

Nausea, vomiting, or diarrhea may occur. If any of these effects persist or worsen, tell your doctor or pharmacist promptly.

Remember that your doctor has prescribed this medication because he or she has judged that the benefit to you is greater than the risk of side effects. Many people using this medication do not have serious side effects.

Tell your doctor right away if you have any serious side effects, including: heartburn, joint pain/swelling, yellowing eyes/skin, dark urine.

Use of this medication for prolonged or repeated periods may result in oral thrush or a new vaginal yeast infection. Contact your doctor if you notice white patches in your mouth, a change in vaginal discharge, or other new symptoms.

Precautions

Before taking clindamycin, tell your doctor or pharmacist if you are allergic to it; or lincomycin; or if you have any other allergies. This product may contain inactive ingredients, which can cause allergic reactions or other problems. Talk to your pharmacist for more details.

Before using this medication, tell your doctor or pharmacist your medical history, especially of: liver disease, kidney disease, stomach/intestinal diseases (e.g., colitis, Clostridium difficile-associated diarrhea), allergic conditions (e.g., asthma, hay fever, eczema).

Clindamycin may cause live bacterial vaccines (such as typhoid vaccine) to not work as well. Do not have any immunizations/vaccinations while using this medication unless your doctor tells you to.

Interactions

Drug interactions may change how your medications work or increase your risk for serious side effects. This document does not contain all possible drug interactions. Keep a list of all the products you use (including prescription/nonprescription drugs and herbal products) and share it with your doctor and pharmacist. Do not start, stop, or change the dosage of any medicines without your doctor's approval.

Omeprazole

Uses

Omeprazole is used to treat certain stomach and esophagus problems (such as acid reflux, ulcers). It works by decreasing the amount of acid your stomach makes. It relieves symptoms such as heartburn, difficulty swallowing, and persistent cough. This medication helps heal acid damage to the stomach and esophagus; helps prevent ulcers, and may help prevent cancer of the esophagus. Omeprazole belongs to a class of drugs known as proton pump inhibitors (PPIs).

Side Effects

Headache or abdominal pain may occur. If any of these effects persist or worsen, tell your doctor or pharmacist promptly.

If your doctor has directed you to use this product, remember that he or she has judged that the benefit to you is greater than the risk of side effects. Many people using this medication do not have serious side effects.

Tell your doctor right away if you have any serious side effects, symptoms of a low magnesium blood level (such as unusually fast/slow/irregular heartbeat, persistent muscle spasms, seizures), signs of lupus (such as a rash on nose and cheeks, new or worsening joint pain).

Precautions

Before taking omeprazole, tell your doctor or pharmacist if you are allergic to it; or to similar drugs (such as esomeprazole, lansoprazole, pantoprazole); or if you have any other allergies. This product may contain inactive ingredients, which can cause allergic reactions or other problems. Talk to your pharmacist for more details.

Before using this medication, tell your doctor or pharmacist your medical history, especially of: liver disease, lupus. Some symptoms may be signs of a more serious condition. Get medical help right away if you have: heartburn with lightheadedness/sweating/dizziness, chest/jaw/arm/shoulder pain (especially with shortness of breath, unusual sweating), unexplained weight loss.

Also Besides, before you self-treat with this medication, get medical help right away if you have any of these signs of a serious condition: trouble/pain swallowing food, bloody vomit, vomit that looks like coffee grounds, bloody/black stools, heartburn for over 3 months, frequent chest pain, frequent wheezing (especially with heartburn), nausea/vomiting, stomach pain.

Interactions

Drug interactions may change how your medications work or increase your risk for serious side effects. This document does not contain all possible drug interactions. Keep a list of all the products you use (including prescription/nonprescription drugs and herbal products) and share it with your doctor and pharmacist. Do not start, stop, or change the dosage of any medicines without your doctor's approval.

Some products that may interact with this drug cilostazol, clopidogrel, methotrexate (especially high-dose treatment), rifampin, St John's wort.

Some products need stomach acid so that the body can absorb them properly. Omeprazole decreases stomach acid, so it may change how well these products work. Some affected products include atazanavir, erlotinib, nelfinavir, pazopanib, rilpivirine, certain azole antifungals (itraconazole, ketoconazole, posaconazole), among others.

Spironolactone

Uses

Spironolactone is used to treat high blood pressure and heart failure. Lowering high blood pressure helps prevent strokes, heart attacks, and kidney problems. It is also used to treat swelling (edema) caused by certain conditions (such as heart failure, liver disease) by removing excess fluid and improving symptoms such as breathing problems.

Side Effects

Drowsiness, dizziness, lightheadedness, stomach upset, diarrhea, nausea, vomiting, or headache may occur. To minimize lightheadedness, get up slowly when rising from a seated or lying position. If any of these effects persist or worsen, notify your doctor or pharmacist promptly.

Precautions

Before taking spironolactone, tell your doctor or pharmacist if you are allergic to it; or if you have any other allergies. This product may contain inactive ingredients, which can cause allergic reactions or other problems. Talk to your pharmacist for more details.

Before using this medication, tell your doctor or pharmacist your medical history, especially of: kidney problems, liver problems, untreated mineral imbalance (such as high potassium, low sodium), decreased adrenal gland function (Addison's disease).

Before having surgery, tell your doctor or dentist about all the products you use (including prescription drugs, nonprescription drugs, and herbal products).

Interactions

Drug interactions may change how your medications work or increase your risk for serious side effects. This document does not contain all possible drug interactions. Keep a list of all the products you use (including prescription/nonprescription drugs and herbal products) and share it with your doctor and pharmacist. Do not start, stop, or change the dosage of any medicines without your doctor's approval.

Some products that may interact with this drug lithium, drugs that may increase the level of potassium in the blood (such as amiloride, cyclosporine, eplerenone, tacrolimus, triamterene, birth control pills containing drospirenone).

Some products have ingredients that could raise your blood pressure or worsen your swelling. Tell your pharmacist what products you are using, and ask how to use them safely (especially cough-and-cold products, diet aids, or NSAIDs such as ibuprofen/naproxen).

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