Respiratory Case Study

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Respiratory Case Study

**General:** The patient, Sarah Jennings, presents at the emergency room with breathing problems and wheezing. The patient is 27-years-old and is only able to converse in short sentences.

**Chief Complaint:** “My breathing is labored and wheezing a lot."



**Source & Reliability of History:** The source of the history is the Dxr, which is a reliable source.

**HPI:** Using the OLDCART techniques, the following information concerning the current symptoms was obtained.



**O –** Ms. Jennings reports that the problem onset a week ago, and is not improving.



**L -** Respiratory or chest

**D -** She notes that the symptoms occur all the time, and report having episodes of coughing, wheezing, and breathlessness almost weekly.

**C –** She reports that working out makes the problem worse. She notes feeling tightness in the chest and cannot breathe.

**A –** She reports that her breathing problem aggravates with moving around or walking, and gets severe when she tries to sleep at night.

**A -** She reports that the problem slightly improves when she takes her inhaler, which is no longer working well

**R –** She notes that the problem radiates to her chest.

**T -** She notes having severe attacks about thrice a year since she was a teenager. She also notes that the problem was more of the same year-round when she was staying in Los Angeles, but worsened after relocating to New Orleans.

**PMH:** The patient is asthmatic and reports experiencing severe attacks thrice annually since her teenage. Nevertheless, she reports not experiencing an attack of the current magnitude. She also notes seeing a pulmonologist and an allergist before for the same problems. In addition, she notes having a cold about a week ago and reports no recent injury. She reports having her normal menstruation.



**PSH:** The patient reports no major life changes causing her emotional stress.



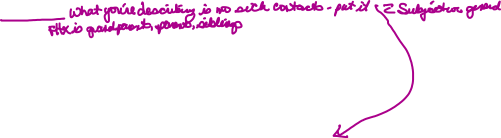
**Social:** The patient is single. She reports that the problem affects her daily routines and notes not being able to exercise or go to the grocery store.



**Family History:** She reports that none of her friends and family members manifests with her disorder.



**Medications:** The patient is currently on an inhaler



**Allergies:** reports allergy to aerosols



**Subjective**

1. **General** – Reports respiratory distress, fatigue, denies fever
2. **HEENT** – Denies headache, discharge from the ear, eyes, and nose, and throat pain.



1. **Respiratory** – Reports labored breathing, coughing, and wheezing



1. **Cardiovascular** – Denies angina



1. **Skin** – Denies rash and jaundice, color change



1. **Abdomen** – Denies diarrhea, pain, constipation, and difficulty swallowing



1. **Genitourinary** – Denies incontinence



1. **Back** – Denies back pain
2. **Extremities** – Reports color change



**Objective**

The chief complaints are breathlessness and wheezing, and the focused physical exam is as follows.



1. **General appearance** – The patient is very short of breath.
2. **Vitals**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| T  99.6° F | B.P  160/110 | HR  120 | Pulse  120 | RR  30 | Oxygen saturation 97% | Weight  125 lb. | Height  5’9” |

1. **HEENT –** Upon assessment, the head is symmetrical face and without evidence of trauma. Her eyes were symmetric, clear, moist, and responsive to consensual stimulation with light. The ears auricles are equal, non-tender, and without impairment or ear lobe crease. The nose is symmetric, pale, non-tender, pale and slightly swollen turbinates, and with slight clear discharge. The neck is symmetric, relaxed, non-tender, and without stridor, scars, or mass. Pulse is absent during inspiration, while the internal jugular pulse is present with trunk, neck, and head elevation. The patient is utilizing her accessory muscles of breathing.



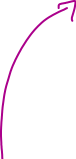
1. **Mouth –** Upon inspection, the tonsils are small, the pharynx is erythematous, and without exudate, the upper roof is midline and symmetrical, and the buccal mucosa is moist, pinks, and have no ulcers.



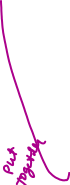
1. **Chest –** The costochondral joints, ribs, and sternum are non-tender, the client is tachypneic, and uses accessory muscles of breathing.



1. **Lungs –** Palpation indicated symmetric respiratory excursion, and the vocal fremitus is moderate and symmetrical. Upon auscultation, the expiratory and inspiration wheezing is evident.



1. **Heart –** Assessment of the heart revealed tachycardia, no murmurs, no abnormal impulse, visible left ventricular impulse with slightly increased intensity, and absence of palpable heave in the pericardium.



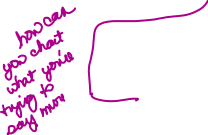
1. **Abdomen –** Upon assessment, the abdomen is non-tender in all quadrants, no bloating, no striae, and no signs of herniation, occasional borborygmi.



1. **Genitourinary –** Non-tender, nopapules, bumps, discharge, or incontinence
2. **Skin/extremities** – No cyanosis of the lips and fingers



1. **Periphery vascular** – Assessment of the peripheral vascular system through positioning, inspecting, palpating, auscultating, and special maneuvers indicated normal femoral and popliteal regions, normal venous refill, and artery sufficiency, as well as the absence of edema, ulcers, erythema, and wasting.

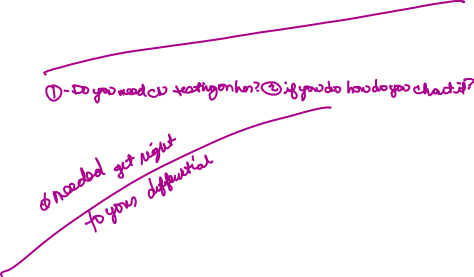


1. **Neurological exam** – Examination of the cranial nerves, sensory and motor examination, reflexes, coordination, and Gait indicated normal neurological function including normal olfactory, optic, extraocular movements, normal reflexes (2+), and absence of palsy.



**Assessment**

The patient presents with dyspnea, which can result from conditions involving the cardiac and respiratory system, for example, asthma, congestive heart failure, pulmonary embolism, interstitial lung disease, and pneumonia (Berliner, Schneider, Welte, & Bauersachs, 2016). Besides cardio-pulmonary disorders, psychogenic conditions, such as panic disorders, can also cause dyspnea. Based on the history and focused assessment results, the following differentials were examined.



1. **Asthma Exacerbation**

This is the most possible cause of Jennings’s current condition. The patient suffers asthma, a long-term disorder marked by respiratory manifestations of wheezing, breathlessness, chest tightness, and coughing. Persons with asthma can encounter acute exacerbations, which are associated with symptoms of difficulty breathing or speaking, decreased lung function, increased heart rate, and hyperventilation. She reports having a cold about a week ago, and respiratory infections can induce asthma exacerbations (Altawalbeh, Manoon, Ababneh, & Basheti, 2019). Worth a note, Jennings presents with typical symptoms of an acute exacerbation of asthma. Based on her history, she recently relocated to New Orleans, after which her disorder worsened. According to Hyrkäs, Ikäheimo, Jaakkola, and Jaakkola, cold climatic conditions normally aggravate respiratory symptoms in asthmatic persons (2016). Besides, she reports a decrease in the efficiency of her inhaler. Worth a note, poorly controlled asthma increases the manifestations of cold-related respiratory symptoms.



1. **Secondary Pneumothorax**

The rationale for this consideration is because the disorder occurs because of an underlying respiratory issue, and Ms. Jennings has a long history of asthma (Franco, Arponen, Hermoso, & García, 2019). This disorder occurs due to a collection of free air in the chest, causing the lungs to collapse. The disorder presents with chest pain that normally has a rapid onset. Other characteristics of pneumothorax that mimic the patient’s manifestation include rapid breathing, cough, breathlessness, and chest tightness. The absence of wheezing distinguishes this disorder from being the top possible cause for Ms. Jennings's problem.

1. **Gastroesophageal Reflux Disease (GERD)**

GERD links to the reflux of stomach contents into the food pipe and can cause asthma-like manifestations, including wheezing, breathlessness, and coughing (Borad, 2016). GERD can also contribute to asthma aggravation and visits to the emergency department (Bansal, Hajifathalian, Mittal, Aggarwal, Gabbard, & Aggarwal, 2016). However, besides the extra-esophageal manifestations, persons with GERD present with other key symptoms, including repeated regurgitation, heartburn, and nausea, which are absent in Ms. Jennings's case.

1. **Pneumonia**

The differential diagnosis also examined the likelihood of pneumonia. Even though asthma does not directly lead to pneumonia, persons with long-term respiratory problems are at higher risk of developing pneumonia, because of weaknesses in the lung tissue or lung damage. The common manifestations of pneumonia include the utilization of axillary muscles for breathing, chest tightness, and cough. According to Postelnicu et al. (2016), breathing is also rapid and shallow. One of the major differentiating element for pneumonia is breathing sound. Ms. Jennings presents with wheezing, which is contrary to rhonchi and rale sounds heard in persons with pneumonia.



**Plan**

**Pharmacology**

Although already on an inhaler, the patient has an exacerbation associated with the weather condition. Giving a short-acting inhaler to loosen and open her airways would be imperative. The medication of choice would be albuterol, a quick relief beta-agonist for rapid, short-term relief of manifestations, as well as prevention and treatment of asthma attack. A spacer and “metered-dose inhaler” would give the drug at a rate of three puffs spaced twenty minutes apart for acute exacerbations (Press, Hasegawa, Heidt, Bittner, & Camargo Jr, 2017). The dosing would be albuterol 2.5 milligrams via oral inhalation.



**Non-Pharmacology**

The approach would include lifestyle interventions, including maintenance of healthy weight, frequent physical activity, and healthy feeding (Stoodley, Williams, Thompson, Scott, & Wood, 2019). Physical activity would help ameliorate lung function and improve her quality of life. An improved diet, high in wholegrain, vegetables, and fruits, and low in saturated fats could improve airway edema, aggravation risk, and asthma control. Breathing exercises and meditation are also vital to non-pharmacological therapy.



**Diagnostics**



The laboratory tests to order include pulmonary function test, spirometry, complete blood count, allergy skin test, nitric oxide measurement, and chest radiography,



**Consults / Referrals**

Consulting with and referring the patient to an allergist and pulmonologist is vital for further assessment.

**Patient Education**

The teachings key to prevention of exacerbation includes adherence to management therapy, avoidance of exposure to cigarette smoke and allergy triggers, avoidance of direct exposure to cold weather, and warming up when exercising.

**Follow Up**

A weekly follow-up to check for improvement and the need for therapeutic modifications is necessary.



References



Altawalbeh, S. M., Manoon, N. A., Ababneh, M. A., & Basheti, I. A. (2019). Respiratory tract infection-induced asthma exacerbations in adults with asthma: assessing predictors and outcomes. *Journal of Asthma*, 1-10.

Bansal, V., Hajifathalian, K., Mittal, A., Aggarwal, P., Gabbard, S., & Aggarwal, N. (2016). Gastroesophageal Reflux Disease (GERD) Is Associated with Worse Outcomes in Patients with Asthma Presenting to the Emergency Department: 496. *American Journal of Gastroenterology*, *111*, S225.

Berliner, D., Schneider, N., Welte, T., & Bauersachs, J. (2016). The differential diagnosis of dyspnea. Deutsches Ärzteblatt International, 113(49), 834.

Franco, A. I., Arponen, S., Hermoso, F., & García, M. J. (2019). Subcutaneous emphysema, pneumothorax and pneumomediastinum as a complication of an asthma attack. *The Indian journal of radiology & imaging*, *29*(1), 77.

Hyrkäs, H., Ikäheimo, T. M., Jaakkola, J. J., & Jaakkola, M. S. (2016). Asthma control and cold weather-related respiratory symptoms. *Respiratory medicine*, *113*, 1-7.

Postelnicu, R., Nguyen, B., Wu, B. G., Katz, K., Mcculoch, D., Zheng, J., ... & Dweck, E. (2016). D46 case reports in environmental and occupational health: giant cell interstitial pneumonia in a patient with world trade center dust exposure. *American Journal of Respiratory and Critical Care Medicine*, *193*, 1.

Press, V. G., Hasegawa, K., Heidt, J., Bittner, J. C., & Camargo Jr, C. A. (2017). Missed opportunities to transition from nebulizers to inhalers during hospitalization for acute asthma: A multicenter observational study. *Journal of Asthma*, *54*(9), 968-976.

Stoodley, I., Williams, L., Thompson, C., Scott, H., & Wood, L. (2019). Evidence for lifestyle interventions in asthma. *Breathe*, *15*(2), e50-e61.