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Case Report

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A Case of Pharyngeal form of Pasteurellosis in a Pregnant Woman in Kazakhstan

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Abstract

Pasteurellosis - zoonotic infection, usually caused, in humans by *Pasteurella multocida*. People infected with Pasteurellosis through direct or indirect contact with sick animals, domestic, agricultural, less often wild. In animals, pasteurellosis can occur both subclinically and in the form of a severe fatal infection (hemorrhagic septicemia). In Europe and the USA, Pasteurellosis is associated with bite or scratches of pets (cats, dogs), In Kazakhstan, Pasteurellosis is usually associated with the slaughter and butchering of farm animals, contact with their meat. In humans, Pasteurellosis can occur as a local skin infection, but also in the form of other primary local forms, but also in the generalized forms.

Keywords: Pasteurellosis; Clinical manifestation; Classification; Pharingeal form

Introduction

Pasteurellosis is an infection caused by representatives of the genus *Pasteurella*, the most common causative agent of Pasteurellosis in humans is *Pasteurella multocida*, a small gram-negative bacterium, which is often a joint of the normal microflora of the oral cavity of animals, including agricultural and domestic animals (cats and dogs) [1]. People become infected with Pasteurellosis through direct or indirect contact with sick animals, in which the disease can occur both subclinically and manifestly. *Pasteurels* are often isolated from wild animals — rodents, hares, ungulates, etc. [2]. An example of severe, fatal Pasteurellosis in animals can be the periodic mass death of saigas in Kazakhstan [3]. The pathogen from animals is released into the external

environment with all possible secretions - with the secret of the upper respiratory tract, urine and feces. According to the English literature, [4] *P. multocida* causes diseases such as: local wound infections after bites or scratches of pets (cats, dogs), which are characterized by suppuration and can be complicated by abscesses and tendovaginitis, as well as septic arthritis, osteomyelitis; respiratory tract infections, including pneumonia, empyema and lung abscesses; and systemic infections, including bacteremia, meningitis, brain abscess, peritonitis and intra-abdominal abscess. Over 100 patients have been under our supervision and treatment in different years since the beginning of the 90s, in particular, we observed an outbreak of Pasteurellosis that affected about 40 people [5], there were also several cases of severe course, including a fatal case [6,7]. Almost all cases of human disease with Pasteurellosis in Kazakhstan were associated with direct or indirect contact with farm animals, their slaughter and cutting of infected meat. We have developed a clinical / epidemiological classification of Pasteurellosis (Table 1).

Table 1: Clinical / pathogenetic classification of Pasteurellosis.

	Groups of forms	*Primary focal (with regional manifestations)*	*Generalized*	*Secondary-focal (with regional manifestations)*
Localization of the "entrance gate" of infection (infection through…)	Skin	**Cutaneous**	Secondary-generalized	**Bubonic** **Pneumonic** **Purulent tonsillitis** **Abdominal** **Meningoencephalitic** **Combined** **Septic** other poorly differentiated forms
	Gastrointestinal tract	**Intestinal** **Abdominal**		
	Respiratory tract	**Acute respiratory,** **Pharyngeal,** **Purulent tonsillitis**		
	Unknown (immunosup-pression)	Not manifested	**Primary-generalized**	
Clinical periods	**Incubation**	**Initial** **(1-3 days)**	**Maximum manifestations**	**Aggravations and Complications**
Phases of the infectious process	Implementation and initial adaptation	Primary-focal and regional manifestations	Generalization (hematogenic dissemination)	Secondary-focal and regional manifestations

Case Presentation

Female 38–year-old (case history number 47567), fell ill at the beginning of February 2022, while in Taraz - respiratory infection, pharyngitis appeared, lymph node increased in the area of the angle of the lower jaw on the left (0.5 x 0.5 cm). The test for COVID-19 showed a negative result. She was not treat with anything. The patient has a 5th pregnancy, at the time of the disease - 15-16 weeks. In February, she moved to Almaty, lives in a comfortable city apartment, works as a warehouse manager. Within 2 months, the lymph nodes in the lower jaw area on the left continued to increase, became moderately painful. 03/28/2022, blood pressure increased to 160/90 mmHg, headaches, dizziness appeared. Blood pressure increased earlier during pregnancy too, for the

first time in 2006. She was hospitalized in the therapy department of the Perinatal center of Almaty city with a diagnosis of Preeclampsia, Pregnancy 22-23 weeks. The patient has concomitant chronic diseases: chronic cholecystitis and chronic pancreatitis. Upon admission, there is an enlarged lymph node in the left ear region, rounded in shape with an uneven clear contour, size 3,1 x 3,0 x 3,5 cm, moderately painful during movement and palpation, motionless, soldered to the surrounding fiber, small sensitive lymph nodes in the left axillary region are also palpated. Respiration is 17 per minute, blood pressure is 130/90 mmHg, heart rate is 87 / min. The abdomen is soft, enlarged due to the pregnant uterus, corresponds to the gestation period of 22-23 weeks, painless. The liver and spleen are not enlarged. Blood. Leukocytes - 10.60 10^9/l; Lymphocytes - 22 %; Monocytes - 5 %; Neutrophils - rod - shaped - 2 %; segmented - 70 %; Eosinophils - 1.0 %; Erythrocytes - 4.36 1012/l; Hemoglobin - 114 g/l; Hematocrit - 35.30 %; Platelets - 150.0 109/l; ESR - 22 mm/h; Prothrombin time - 10.8 sec.; Prothrombin index - 126.0 %; International Normalized Ratio (INR) - 0.91; Fibrinogen - 4.20 g/l; Urine, the color is light yellow; volume - 60 ml; transparent; relative density - 1,020; Ph - 5; Leukocytes (microscopy) - 0-1 in n/a; Flat epithelium - 0-1 in n/a; Erythrocytes - 0.0; Ketone bodies - 1.0 mmol/l; Procalcitonin - 0.1 ng/ml; Rheumatoid Factor - 12.4 IU/ml; CRP - 10.5 mg/l; RPHA for Tularemia, Listeriosis, Yersiniosis antibodies is negative, with Pasteurellosis - 1:100, with Pseudotuberculous - 1:50. ELISA with Listeriosis, Yersinioses - negative, Pasteurellosis (IgG) is positive. On ultrasound - Pregnancy in the period of 22-23 weeks; Chronic pyelonephritis. Signs of diffuse changes in liver and pancreatic parenchyma. Hemangioma of the left lobe of the liver. Concretions in the gallbladder cavity. Electrocardiographic examination of the sinus rhythm, the normal position of the EOS. Heart rate 79 / min/. Ultrasound of the lymph node - in the left behind the ear area is located subcutaneously hypoechoic formation, rounded shape with an uneven clear contour, size 3,1 x 3,0 x 3,5 cm. Conclusion - Lymphadenitis behind the ear lymph nodes on the left. Diagnosis: Left-sided submandibular lymphadenitis. There is no data for the abscess of the maxillofacial region. There is cyst of the parotid gland on the left.

Treatment

Dopegit (250 mg 3 t/d in tablets)

Thrombopol (75 mg, 1 t/d in tablets)

Ceftriaxone (1 g, Intramuscularly 2 t/d).

So, in the area of the angle of the lower jaw on the left side there is an enlarged lymph node, rounded in shape with an uneven clear contour, size 3,1 x 3,0 x 3,5 cm **(Figure 1 and 2).**

Figure 1,2: Regional manifestations of acute respiratory / pharyngeal form of pasteurellosis, lymphadenitis in the area of the angle of the lower jaw on the left.

Discussion

Against the background of the COVID-19 pandemic, other infections may occur, with respiratory manifestations. This case can be interpreted as a mild course of acute respiratory or pharyngeal form of Pasteurellosis, however, even a mild course can be complicated during pregnancy by generalization of infection and damage to the child and mother. Infection, apparently, occurred when cutting the meat of a sick farm animal and introducing the pathogen into the oral cavity with contaminated hands. Within two months, the infection did not resolve itself without treatment, localizing and gradually progressing, mainly in the regional (of the angle of the lower jaw on the left) lymph node. On the other hand, this case demonstrates that our ideas about the spread of Pasteurellosis are very relative and do not cover all, primarily easily occurring cases of it. It is important, even against the background of a pandemic, to clarify the etiological factor of both respiratory infections and, in particular, lymphadenitis.

Conclusion

Clinical diagnosis of Pasteurellosis is often very difficult, which requires a comprehensive examination of bacteriological, molecular genetic (PCR) and serological for a group of zoonotic infections with similar clinical manifestations, such as Pasteurellosis, Listeriosis, Yersinioses, as well as Tularemia (in the latter case, if the patient was in an endemic territory). It is imperative to investigate long-lasting enlarged lymph nodes for potential causes, both infectious and non-infectious. When puncturing a lymph node, it is necessary to use the collected material, including for infectious pathogens.

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