This video format is designed to help you prepare for objective structured clinical examinations, or OSCEs.

You are going to observe and participate in the clinical encounter of a 17-year-old patient who comes to the office with a complaint of a sore throat.

As you observe the encounter, you will be asked to answer questions while the image on the screen freezes. These questions will allow you to practice history taking and physical examination skills as well your clinical reasoning as you develop your assessment or differential diagnosis, and your plan—that is, an appropriate diagnostic workup.

You will have time to record your findings and receive feedback.

**Health History**

Tell me your special concerns today.

I have had a sore throat for the past week. I feel achy and tired and I don’t feel like going to softball practice.

What are your diagnostic considerations at this point in this age group?

Strep throat.

Viral pharyngitis.

Infectious mononucleosis.

Have you had any fever or chills?

My mom checked my temperature yesterday, it was 100°F, but I haven’t felt any chills.

Okay, how about swallowing?

Yeah, it’s been pretty hard to swallow. I can get down food but...drinking is a lot easier.

Any swollen glands?

The glands in my neck have felt pretty swollen for the past few days.

Okay, is anyone sick at home or at school?

Um...yeah my friend on my team, she had the same thing. She felt really tired for a couple of weeks. About two months ago my sister had a sore throat for a while and she felt really tired.
What about earache or your sinuses?
My ears and sinuses are okay, I have a slight headache right in the front of my head.

How about cough?
No, I don’t really have a cough. Mostly my throat just hurts and um...I feel really tired.

Okay, any changes in your weight or your appetite?
I’m not really hungry but my weight seems about the same.

Have you tried anything to get yourself better?
Well, to be honest, I took some amoxicillin from our medicine cabinet for the past few days. My sister thought it would help, but I still feel the same.

Okay, how much amoxicillin did you take?
It was about two or three times a day.

**Physical Examination**

With the patient’s concerns and health history in mind, and after good hand hygiene, you are ready for the physical examination.

What areas of physical examination are important in this patient?
Head and neck, especially pharynx, upper palate, and lymph nodes.
The abdomen, especially the spleen.

I see that your temperature is 100.1°F. Now, your blood pressure is okay at 118 over 80 and your heart rate is 90, which is a little up. But your breathing is about 18 per minute, which is normal. I’ll go ahead and check your head and throat now.

Palpate the patient’s head and sinuses.

Does this hurt?
No.

Okay. How about now?
No.

Now I’m going to look at your eyes.

Check the patient’s pupillary response and inspects sclerae.

Check the patient’s ears.
Check the patient’s pharynx.

Say, “ah.”

Ahhhh... I do seem some white patches on your tonsils in the back of your throat.

Check the patient’s upper palate.

I do see some spots on the roof of your mouth as well.

Palpate the patient’s anterior cervical lymph nodes.

Any tenderness here?

Not really.

Palpate the patient’s posterior cervical lymph nodes.

These lymph nodes feel enlarged. How about tenderness here?

Yeah, they’re pretty tender.

Check the patient’s heart and lungs.

Your heart and lungs are fine. I am going to check your stomach area now.

Perform a careful abdominal exam, listening in all four quadrants.

Perform light palpation...and deep palpation of the abdomen.

Palpate and percuss the patient’s liver.

With the patient supine, palpate the patient’s spleen.

Okay, take a deep breath in...and let it all the way out. Does that feel tender?

Yeah, that does feel a little tender.

Now just to be sure, I am going to check your spleen with you lying on your right side.

With the patient on the right side, palpate the patient’s spleen diagonally toward the shoulder, starting at about the umbilical area up to the left costal margin.

Take a deep breath in...and let it all out. Any tenderness here?

Yeah, that does feel a little tender.

Check the patient’s lower extremities for petechiae or edema.

**Diagnostic Considerations**
List your diagnostic considerations in order of importance and explain your rationale.

Press pause and list your answers. Resume when you are ready to receive feedback.

Infectious mononucleosis. The patient has sore throat and fatigue with mild fever and occasional headache. Her sister had similar symptoms about 2 months earlier. The physical examination shows a temperature of 100.1°F, pharyngeal exudates, palatal petechiae, posterior adenopathy, and tenderness on palpation of the spleen, although splenic enlargement is not noted. Fever, pharyngeal exudates, and posterior lymphadenopathy are the classic triad of symptoms and signs of infectious mononucleosis, which is most common in adolescents and young adults.

Typical physical examination findings are diffuse exudates on the tonsils and enlargement of the posterior cervical lymph nodes (typically more enlarged than in a bacterial infection). Palatal petechiae and enlargement of the spleen may also be present.

Streptococcal pharyngitis. The patient has fever, sore throat, tonsillar exudates, and no cough. Cervical adenopathy is anterior, unlike this patient, and palatal petechiae and splenic involvement are not seen, although co-infection with both Group A streptococcus and mononucleosis is not uncommon. Group A beta hemolytic streptococcus accounts for roughly 10% of adult cases of pharyngitis and 10-30% of cases in children.

The modified Centor criteria are widely used to predict the likelihood of streptococcal infection and the need for antibiotic therapy. These criteria assign one point each for fever, tonsillar exudates, anterior cervical adenopathy, absence of cough, and age less than 15.

For 0-1 points: no throat culture or antibiotics are necessary. For 2-3 points: the risk is about 30%, so you should consider a culture and possible antibiotics. At 4-5 points, antibiotic treatment is warranted, but a culture is not needed since the risk over 50%.

Viral pharyngitis. Most cases of viral pharyngitis are self-limiting. Common symptoms include conjunctivitis, prominent rhinorrhea, sinus congestion, cough, hoarseness, or diarrhea.

If cough is present, consider postnasal drip and occasionally gastro-esophageal reflux or GERD. Viral causes including rhinovirus, adenovirus, and coronavirus, are less likely in this patient.

Influenza typically presents with abrupt onset of fever, cough, sore throat, runny or stuffy nose, myalgias, headache, marked fatigue, and possible vomiting and diarrhea, which is more likely in children. It is caused by influenza viruses infecting the nose, throat, and lungs and spread by droplets from sneezing or cough and less commonly from touching infected surfaces. Transmission lasts from 1 day before symptoms appear to 5-7 days after infection.

However, in this patient the presence of splenic tenderness, tonsillar exudates (as opposed to pharyngeal erythema), and lack of cough decreases the likelihood of this diagnosis.

Retropharyngeal abscess is often diagnosed late and requires a high suspicion for diagnosis and treatment. It is most common in children under 5 but can occur at any age. Typical symptoms are fever, sore throat, neck pain or stiff neck, and difficulty swallowing. Stridor and respiratory distress are rare.
On physical examination there may be limitation of neck movement, especially neck extension. Posterior pharyngeal edema or mass may be present.

Another subtle but serious diagnostic consideration is epiglottitis, which also initially presents with fever and difficulty swallowing, but negative throat findings since the epiglottis is not visible.

Also the patient is not having difficulty swallowing or breathing and is not sitting in a “tripod” position from neck hyperextension, which is common in epiglottitis.

This diagnosis of retropharyngeal abscess is unlikely due to the clinical presentation in this patient, but should be considered if more serious symptoms are present.

**Diagnostic Workup**

List 5 next steps in your diagnostic workup.

Press pause and list your answers. Resume when you are ready to receive feedback.

Monospot test. This test is a form of the heterophile antibody test, a rapid test for infectious mononucleosis due to Epstein–Barr virus.

It is 70%-90% sensitive.

If this test is negative further EBV serologic testing can be obtained if needed. This test is highly specific, so if the test is positive, infectious mononucleosis is likely to be present.

Complete Blood Count with differential. In infectious mononucleosis the total number of lymphocytes is elevated and atypical lymphocytes are typically greater than 10%. The peripheral smear is an important initial test if other blood disorders are suspected.

Rapid strep test. This test is 85% sensitive for streptococcal pharyngitis and can be done quickly in the office. If positive, antibiotic therapy is warranted and throat culture can be deferred. If negative, consider throat culture if indicated by the modified Centor criteria and clinical risk factors such as exposure to infected contacts.

Throat culture is indicated according to the modified Centor criteria and confirms the presence or absence of streptococcal pharyngitis.

Lateral neck films or neck CT scan. Consider these tests if there is a need to rule out or confirm retropharyngeal abscess or epiglottis.

**Summary**

In sum, this is a 17-year-old high school student with sore throat, fatigue, and low-grade fever for the past week. She can swallow liquids but has some difficulty swallowing food. A fellow student has similar symptoms and her sister had sore throat and fatigue several weeks earlier. On physical examination she
has a temperature of 100.1°F, tonsillar exudates, palatal petechiae, and posterior cervical adenopathy. Her spleen is slightly tender but not enlarged.

Diagnostic considerations include infectious mononucleosis, streptococcal pharyngitis, viral pharyngitis, influenza, and retropharyngeal abscess.

Infectious mononucleosis is most likely due to the classic symptoms of sore throat, fatigue, fever, and swollen glands...and her signs on physical examination of fever, tonsillar exudates, palatal petechiae, posterior cervical lymphadenopathy, and splenic tenderness.

There is no rash, which is sometimes seen in patients with mononucleosis who have taken amoxicillin. Patients with infectious mononucleosis and splenic enlargement, not present here, should avoid contact sports until the spleen returns to normal size to reduce risk of splenic rupture.

Retropharyngeal abscess is unlikely, but airway obstruction should always be considered in patients with difficulty swallowing.

Diagnostic workup includes the monospot test, CBCd, rapid strep test, throat culture if indicated by the modified Center criteria for streptococcal pharyngitis, and lateral neck films or neck CT if more severe conditions are present.