Lab Tests and Results

Anaerobic microbial culture

What is this test?

This test isolates and identifies anaerobic bacteria from a certain body fluids[1][2][3]. These bacteria do not require oxygen to survive. This test is used to help diagnose infections with anaerobic bacteria[4][5]. A sample of cerebrospinal fluid, peritoneal fluid, pleural fluid, synovial fluid, pus, urine, or another body fluid may be collected for this test. Pus or fluid taken directly from a particular part of the body (eg, brain, lungs and trachea) using a special technique may also be collected for this test[1][2][3].

Why do I need this test?

Laboratory tests may be done for many reasons. Tests are performed for routine health screenings or if a disease or toxicity is suspected. Lab tests may be used to determine if a medical condition is improving or worsening. Lab tests may also be used to measure the success or failure of a medication or treatment plan. Lab tests may be ordered for professional or legal reasons. The following are possible reasons why this test may be done:

- Abscess of brain
- Anaerobic infection
- Aspiration pneumonia

When and how often should I have this test?

When and how often laboratory tests are done may depend on many factors. The timing of laboratory tests may rely on the results or completion of other tests, procedures, or treatments. Lab tests may be performed immediately in an emergency, or tests may be delayed as a condition is treated or monitored. A test may be suggested or become necessary when certain signs or symptoms appear.

Due to changes in the way your body naturally functions through the course of a day, lab tests may need to be performed at a certain time of day. If you have prepared for a test by changing your food or fluid intake, lab tests may be timed in accordance with those changes. Timing of tests may be based on increased and decreased levels of medications, drugs or other substances in the body.

The age or gender of the person being tested may affect when and how often a lab test is required. Chronic or progressive conditions may need ongoing monitoring through the use of lab tests. Conditions that worsen and improve may also need frequent monitoring. Certain tests may be repeated to obtain a series of results, or tests may need to be repeated to confirm or disprove results. Timing and frequency of lab tests may vary if they are performed for professional or legal reasons.

How should I get ready for the test?

Cerebrospinal fluid:

A lumbar puncture is a procedure that requires your written consent. Review the consent form with the healthcare worker and ask any questions that you have before signing the consent form. You may receive certain medications and need imaging tests done prior to the procedure.

Tell the person doing the lumbar puncture if you have a medical condition or are using a medication or supplement that causes excessive bleeding. Contact the healthcare worker if you have a history of chronic back pain, structural defects in your spine, or a past spinal surgery. Tell the healthcare worker if you have an infection on your back or if you have any psychiatric or neurological (nerve) conditions. You should also report if you have a history of allergic other reactions to local anesthetics.

Peritoneal fluid:

A paracentesis is a procedure that requires written consent. Review the consent form with the healthcare worker and ask any questions that you have before signing the consent form.

Tell the healthcare worker if you have a medical condition or are using a medication or supplement that causes excessive bleeding. You should also report if you have a history of allergic or other reactions to local anesthetics. You may be asked to empty your bladder before the procedure. Your vital signs, weight, and waist measurement will be recorded before and after a paracentesis.

Pleural fluid:

A thoracentesis is a procedure that requires written consent. Review the consent form with the healthcare worker and ask any questions that you have before signing the consent form. Tell the healthcare worker if you have a medical condition or are using a medication or supplement that causes excessive bleeding. You should also report if you have a history of allergic or other reactions to local anesthetics. You may need to have blood tests and a chest x-ray performed before the thoracentesis.

Synovial fluid:

An arthrocentesis is a procedure that requires written consent. Review the consent form with the healthcare worker and ask any questions that you have before signing the consent form.

Tell the healthcare worker if you have a medical condition or are using a medication or supplement that causes excessive bleeding. You should also report if you have a history of allergic or other reactions to local anesthetics. Blood tests may need to be done before an arthrocentesis.

Urine:

To prepare for giving a urine sample, be sure to drink enough fluids before the test, unless you have been given other instructions. Try not to empty your bladder before the test.

A suprapubic bladder aspiration is a procedure that requires written consent. Review the consent form with the healthcare worker and ask any questions that you have before signing the consent form.

Tell the healthcare worker if you have a medical condition or are using a medication or supplement that causes excessive bleeding. You should also report if you have a history of allergy or other reactions to local anesthetics.

Other body fluid or tissue samples:

A different sample other than the samples listed above may be used for this test. Ask your healthcare worker for information about how to prepare for this test. If you have questions or concerns about the preparation for this test, talk to the healthcare worker.

How is the test done?

A sample of cerebrospinal fluid, peritoneal fluid, pleural fluid, synovial fluid, pus, urine, or another body fluid may be collected for this test. Pus or fluid taken directly from a particular part of the body (eg, brain, lungs and trachea) using a special technique may also be collected for this test[1][2][3].

Cerebrospinal fluid:

Cerebrospinal fluid is the fluid that surrounds the brain and spinal cord tissues. The procedure that collects a sample of cerebrospinal fluid is called a lumbar puncture. For this procedure, you may need to lie on your side facing away from the person performing the procedure. You may be asked to roll up into a ball with your knees brought close to your chest. This position allows your spine to spread apart slightly and helps direct needle placement. This procedure may also be done while you are in an upright sitting position, with your knees drawn up toward your chest.

An area in the lower back will be chosen for the needle insertion site. This is about at the level of the top of your hip bone. Your skin will be cleaned with antiseptic and the area will be draped with sterile cloth. Local anesthetic will be injected with a small needle to numb the area. Anesthetic cream may also be applied. After the anesthetic has taken effect, the lumbar puncture needle is inserted between the vertebrae and into the spinal column. Cerebrospinal fluid is drawn out for testing and the needle is removed. You may need to change positions during the procedure if the healthcare worker is having difficulty collecting a sample of fluid. This procedure may be done more than one time if collecting cerebrospinal fluid is difficult.

Peritoneal fluid:

Peritoneal fluid is the fluid in the space between the membrane linings of the abdomen wall and organs in the abdominal cavity. A paracentesis is a procedure that may be used to obtain a sample of peritoneal fluid. For this procedure, your skin will be shaved and cleaned, and a sterile area will be prepared. A local anesthetic will be used to numb the procedure area. A needle will be inserted through the abdominal wall into a fluid pocket. Sometimes a small incision is made to help insert the needle.

If fluid removal is difficult, you may need to change positions during the procedure to drain different pockets of fluid. After enough fluid has drained, the needle will be removed.

Pleural fluid:

Pleural fluid is the fluid in between the membrane linings of your lungs. A procedure called a thoracentesis is done to get a pleural fluid sample for testing. A healthcare worker will first need to locate the fluid that needs to be sampled. This is done by a chest x-ray, ultrasound, or by percussion (rhythmically pounding the chest wall). Once the fluid is located, a healthcare worker may hold up the arm on the same side where the procedure will be done. Your skin will be cleaned with antiseptic, and a local anesthetic is injected to numb the area. A needle will be inserted into the fluid pocket. Fluid samples are then drawn out using a needle attached to a syringe. When a large enough sample is collected, the needle will be removed. A thoracentesis may be done with or without the assistance of ultrasound or CT scan.

Synovial fluid:

Synovial fluid is the fluid around the joints. A synovial fluid sample is obtained by a procedure called an arthrocentesis. The skin over the joint will be cleaned, and a local anesthetic will be used to numb the tissue at the insertion site. A needle will be inserted into the space around the joint, and fluid collected into a syringe. After enough synovial fluid has been collected, the needle will be removed.

Urine:

Suprapubic bladder aspiration is a special method used to sample urine. First, the bladder is located with the help of an ultrasound machine[6]. A sterile area will be prepared. A local anesthetic may be used to numb the procedure area. A needle will be inserted into the skin above the pubic bone. The needle will pass through the abdominal wall and reach the bladder[7]. Urine is then drawn out into a syringe. Once a large enough sample is collected, the needle will be removed.

Other body fluid or tissue samples:

A different sample other than the samples listed above may be used for this test. Methods used to collect other body fluids or tissue samples may vary. Ask the healthcare worker to explain how this sample may be collected. If you have questions or concerns about this test, talk to the healthcare worker.

How will the test feel?

The amount of discomfort you feel will depend on many factors, including your sensitivity to pain. Communicate how you are feeling with the person doing the procedure. Inform the person doing the procedure if you feel that you cannot continue with the procedure.

Cerebrospinal fluid:

Before a lumbar puncture, a local anesthetic is given to the procedure site to numb the area. You may feel mild discomfort or stinging when the numbing medicine is injected. You may feel a pressure, a popping sensation, and discomfort when the procedure needle is inserted. Tell the person doing the test if you feel pain or numbness down your leg during the procedure. You may have back discomfort for several days after the procedure.

Peritoneal fluid:

For a paracentesis, a local anesthetic is given to numb the procedure area and decrease pain. When the numbing medicine is injected, you may feel mild discomfort or stinging. Brief pain may be felt as the needle passes through the abdominal wall. If you have a large build-up of extra peritoneal fluid, this procedure may decrease or relieve abdominal discomfort or difficulty breathing. If a large quantity of fluid is removed you may feel dizzy or light-headed. Tell the person doing the test if you feel dizzy or light-headed. The procedure site may be sore for several days.

Pleural fluid:

Before a thoracentesis, a local anesthetic is given to the procedure site to numb the area. You may feel mild discomfort or stinging when the numbing medicine is injected. You may still be able to feel pressure or discomfort during the procedure. Your procedure site may be sore for several days.

Synovial fluid:

During an arthrocentesis, a local anesthetic is given to numb the procedure area. You may feel mild discomfort or stinging when the numbing medicine is injected. You may feel pressure or discomfort during the procedure. Brief pain may be felt as the needle passes through the joint membrane. Your procedure site may be sore for several days.

Urine:

Before a suprapubic bladder aspiration, a local anesthetic is given to the procedure site to numb the area. You may feel mild discomfort or stinging when the numbing medicine is injected. You may still be able to feel pressure or discomfort during the procedure. Your procedure site may be sore for several days.

Other body fluid or tissue samples:

A different sample other than the samples listed above may be used for this test. This test may feel different depending on many factors, including the sample needed and how it is collected. Ask the healthcare worker what to expect during this test.

What should I do after the test?

Cerebrospinal fluid:

After the lumbar puncture is complete, a bandage will be placed over the site and pressure held until the bleeding or drainage has stopped. You will need to lie flat for at least 1 to 2 hours after the lumbar puncture. Healthcare workers will monitor for drainage from the puncture site for a period of time after the test. You may be able carefully turn from your back to your side. You will be offered fluids to drink.

Peritoneal fluid:

After paracentesis is used to collect a sample of peritoneal fluid, pressure may be applied and a bandage will be secured over the puncture site. Your puncture site bandage and vital signs will be monitored frequently for a period of time after this procedure. Tell your healthcare worker immediately should you feel dizziness or weakness shortly after the procedure.

You will be given instructions for how to care for your bandage, and signs and symptoms of infection to watch for. Contact your healthcare worker if you develop a fever or increased pain, and if you see continued drainage, increasing redness, swelling, or pus formation at the procedure site.

After a paracentesis, healthcare workers may need to check your urine for any blood, as this may be a sign of bladder injury. Watch for any blood in your urine for at least 24 hours after the procedure. If you see blood in your urine, contact your healthcare worker immediately.

Pleural fluid:

After a thoracentesis, a bandage will be secured over your procedure site and pressure held until the bleeding or fluid leakage stops. You may receive a chest x-ray to check for complications. The chest x-ray may be repeated to look for the return of fluid in the lung. Follow your healthcare worker's instructions for changing your bandage and other wound care. Tell your healthcare worker immediately if you have a new onset of difficulty breathing, shortness of breath, chest pain, weakness, fatigue, fever, or dizziness. Also immediately tell your healthcare worker if you have increased bleeding or drainage from the procedure site.

Synovial fluid:

After an arthrocentesis is completed, pressure may be held to the site, and a bandage secured over the puncture site. If a large amount of fluid is removed, an elastic wrap may be used to support your joint. To treat swelling and pain, you may place cold packs over the joint. Avoid heavy use of the joint for a few days. If you have difficulty using the affected arm or leg after the procedure, contact your healthcare worker.

You will be given instructions for how to care for your bandage and the signs and symptoms of infection to watch for. Contact your healthcare worker if you have a fever or increased pain, and if you see increasing redness, swelling, or pus at the procedure site.

Urine:

After suprapubic bladder aspiration is used to collect a sample of urine, pressure may be applied and a bandage will be secured over the puncture site. Your puncture site bandage and your urine output will be monitored frequently for a period of time after the procedure.

You will be given instructions on how to care for you bandage, and signs and symptoms of infection to watch for. Contact your healthcare worker if you develop a fever or pain worsens. Check also if you see continued drainage, increasing redness, swelling, or pus formation at the procedure site.

There may be some blood in the urine after the procedure[6]. Contact your healthcare worker if this persists or worsens.

Other body fluid or tissue samples:

A different sample other than the samples listed above may be used for this test. Instructions for what to do after a collection of other body fluid or tissue samples may vary. Ask the healthcare worker to instruct you on what to expect after this test is completed. If you have questions or concerns about what to expect after the test is completed, talk to the healthcare worker.

What are the risks?

Cerebrospinal fluid: Cerebrospinal fluid is collected by a procedure called a lumbar puncture. The most common risk of a lumbar puncture is spinal fluid leakage from the puncture site. This procedure may cause a mild to severe headache, which may last for several days. Although rare, other risks include infection, nerve injury, bleeding in the spinal canal, and damage to the discs in between your spine. If you have a medical condition, or are using a medication or supplement that causes excessive bleeding, you are at a higher risk of bleeding from the puncture site. If you have a condition where you have increased pressure within your skull, such as a traumatic head injury or a large brain tumor, this procedure carries a risk of brain herniation (where the skull contents are pressed down on to the spinal cord causing brain damage). The person doing this test may need to perform it more than once. Talk to your healthcare worker if you have any concerns about the risks of this procedure.

Peritoneal fluid: A procedure called a paracentesis is done to collect a sample of peritoneal fluid for testing. Risks of a paracentesis include infection and severe bleeding. The needle used to do the procedure may damage an organ in the abdomen. If a large quantity of fluid is removed, your blood pressure may drop too low. If you have a medical condition, or are using a medication or supplement that causes excessive bleeding, you are at a higher risk of bleeding from the puncture site. The person doing this procedure may need to perform it more than once. Talk to your healthcare worker if you have any concerns about the risks of having a paracentesis.

Pleural fluid: A procedure called a thoracentesis is done to collect a pleural fluid sample for testing. Common risks of a thoracentesis include bleeding and bruising at the puncture site and pneumothorax (collapsed lung). If you have a medical condition, or are using a medication or supplement that causes excessive bleeding, you are at a higher risk of bleeding from the puncture site. Rare risks include hemothorax (blood in the chest cavity), pulmonary edema (accumulation of fluid in the lungs), and venous air embolism (air bubble in a vein). Your liver or spleen may be damaged by the needle used during the procedure. The person doing this procedure may need to perform it more than once. Talk to your healthcare worker if you have any concerns about the risks of having a thoracentesis.

Synovial fluid: An arthrocentesis is the procedure used to get a sample of synovial fluid for testing. Risks of an arthrocentesis include bleeding into the joint and joint infection. If you have a medical condition, or are using a medication or supplement that causes excessive bleeding, you are at a higher risk of bleeding from the puncture site. The person doing this procedure may need to perform it more than once. Talk to your healthcare worker if you have any concerns about the risks of having an arthrocentesis.

Other body fluid or tissue samples: A different sample other than the samples listed above may be used for this test. Ask your healthcare worker to explain the risks of this test to you. If you have questions or concerns about this test, talk to the healthcare worker.

What are normal results for this test?

Laboratory test results may vary depending on your age, gender, health history, the method used for the test, and many other factors. If your results are different from the results suggested below, this may not mean that you have a disease. Contact your healthcare worker if you have any questions. The following is considered to be a normal result for this test:

Adults and Children: Negative

What follow up should I do after this test?

Ask your healthcare worker how you will be informed of the test results. You may be asked to call for results, schedule an appointment to discuss results, or notified of results by mail. Follow up care varies depending on many factors related to your test. Sometimes there is no follow up after you have been notified of test results. At other times follow up may be suggested or necessary. Some examples of follow up care include changes to medication or treatment plans, referral to a specialist, more or less frequent monitoring, and additional tests or procedures. Talk with your healthcare worker about any concerns or questions you have regarding follow up care or instructions.

Cerebrospinal fluid:

You may experience headaches for hours to days, or even weeks after a lumbar puncture. The headaches are usually worse when sitting or standing upright and are relieved by lying down. Headaches are often associated with nausea, a stiff neck, tinnitus (ringing in the ears), photophobia (abnormal sensitivity to or intolerance of light), vertigo (dizziness), and blurred vision. Contact your healthcare worker if your symptoms worsen.

References

1. Tietz NW (Ed): Clinical Guide to Laboratory Tests, 3rd ed. W. B. Saunders, Philadelphia, PA, 1995.
2. Bergan T: Diagnostic considerations and sample collection for anaerobic bacteria. Scand J Gastroenterol Suppl 1983; 85:5-14.

3. Brook I: Collection and transportation of specimens in anaerobic infections. J Fam Pract 1982; (15)4:775-779.
4. Feleke G & Forlenza S: Anaerobic infections. The basics for primary care physicians. Postgrad Med 1991; 89 (8):221-224, 227-230, 233-234.
5. Brown KR: Diagnosis and management of anaerobic infections. Trop Doct 1977; 7(3):111-114.
6. Roberts JR & Hedges R: Clinical procedures in emergency medicine, 4th ed. WB Saunders, Philadelphia, PA, 2003, pp -.
7. Henry JB. : Clinical Diagnosis and Management by Laboratory Methods.. 20th ed. Philadelphia, PA. WB Saunders Co., 2001.