**PAPER SUBJECT**

**Surgery II**



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**QUESTION NO 1**

**Q. Differentiate between communicating and non- communicating hydrocephalus. Give prognosis of hydrocephalus.**

**ANSWER NO 1**

HYDROCEPHALUS

Hydrocephalus is the abnormal accumulation of CSF (cerebrospinal fluid) in the brain ventricles. This increases the intra cranial pressure. Normally the cerebrospinal fluid supply nutrients , add cushioning affect and removes waste product from the brain and spinal cord. Increase in the amount of CSF causes harmful pressure on the brain. This fluid increases accumulation may increase the size of head , increase pressure may damage the brain parts affecting those parts functions.

**CAUSES OF HYDROCEPHALUS**

* Mostly due to genetical problem
* Present congenitally
* May occur after birth called acquired hydrocephalus

**Due to following reasons**

* Tumors,
* Bleeding in the brain.
* Strokes,
* Infections,
* Head injuries,

**SYMPTOMS**

* May have problem in balancing
* Problems in vision blurry vision
* Bladder control problems
* Vomiting
* May feel nausea
* Cognitive problems
* Most cases causes headache

**Difference between communicating and non-communicating hydrocephalus.**

|  |  |
| --- | --- |
| **Communicating hydrocephalus.** | **Non-communicating hydrocephalus.** |
| Also called Benign external hydrocephalus | Also called normal Pressure Hydrocephalus |
| **CAUSE****Occurs** when an accumulation of CSF is found outside the brain | **CAUSE****Occurs** when CSF flow is obstructed within the ventricular system or in its outlets to the arachnoid space |
| **Communicating hydrocephalus** ) is **caused** by inadequate reabsorption of CSF. | **Reduced flow** and absorption of CSF into specialized blood vessels called arachnoid villi can in a buildup of CSF . happens when the flow of CSF is blocked along one or more of the narrow passages connecting the ventricles. |
| Full communication of fluidbetween ventrical and subarchonid space | CSF cannot flow out of the ventricals due to blockage or malformation |
| **AGE****Usually** presents itself at birth or soon thereafter. | **AGE**It is most common among the elderly. |
| External hydrocephalus is a condition generally seen in infants which involves enlarged fluid spaces or subarachnoid spaces around the outside of the brain.  | Non communicating hydrocephalus is a condition generally seen in infants which involves enlarged fluid spaces or subarachnoid spaces around the inside of the brain.  |
| **LEVEL OF BLOKAGE**Blockage at the level of archonaid granulation | **LEVEL OF BLOKAGE**Blockage proximal to the archonaid granulation |
| All four ventricals are enlarged | Dialation of lateral and third ventrical with small compressed or normal size 4rth ventrical |
| **LUMBER PUNCTURE**May do lumbar puncture | **LUMBER PUNCTURE**Do not do lumber puncture |
| **COMMUNICATION**Communicating with subarchonaid space | **COMMUNICATION**Not communicating with sub archonaid space |
| **DIAGNOSIS**ultrasonography, computer tomography (CT), magnetic resonance imaging (MRI), or procedures like lumbar puncture (spinal tap) or placement of a brain wire monitor to measure pressure, called inner cranial |  **DIAGNOSIS**Brain images to detect enlarged ventricles* MRI
* CT or CAT scan
 |
| **TREATMENT**This is generally a [benign](https://en.wikipedia.org/wiki/Benign) condition that resolves spontaneously by two years of age and therefore usually does not require insertion of a shunt. | **TREATMENT** Patients with **communicating hydrocephalus** benefit from placement of a ventriculoperitoneal or ventriculoatrial shunt |

**Give prognosis of hydrocephalus.**

**PROGNOSIS OF HYDROCEPHALUS**

The hydrocephalus prognosis depends on the cause, extent of symptoms and the timeliness of diagnosis and treatment.

Some patients may show a intense improvement with treatment, while others may not.

 In some instances of normal pressure hydrocephalus, dementia can be reversed by shunt placement. Other symptoms of hydrocephalus headaches, may disappear almost immediately if the symptoms are related to elevated pressure.

 Earlier hydrocephalus is diagnosed, the better the chance for successful treatment and chances of recovery.

 Unfortunately no accurate prediction of success of surgery. Some patients will improve dramatically, while others will reach a plateau or decline after a few months.

Shunt malfunction or failure may occur. The valve can become clogged or the pressure in the shunt may not match the needs of the patient, requiring additional surgery.

 If infection occurs infection, antibiotic therapy may be needed and likely temporary removal of the shunt and replacement by a drain until the infection clears. The shunt reimplantation is the done

A shunt malfunction may be indicated by headaches, vision problems, irritability, fatigue, personality change, loss of coordination, difficulty in waking up or staying awake, a return of walking difficulties, mild dementia or incontinence.

 In infants, the symptoms of shunt malfunction can include the above as well as vomiting, inappropriate head growth and/or sunsetting eyes. When a shunt malfunctions, a surgery is often needed to replace the blocked or malfunctioning portion of the shunt system. Fortunately, most complications can be dealt with successfully.

Neurological damage that may have occurred prior to treatment is unfortunately irreversible and can have a significant impact on functional social outcomes such as social integration, schooling, and marriage.

**QUESTION NO 2**

**Q2. Identify population at risk of developing nephrolithiasis. Give surgical management of kidney stones.**

 **NEPHROLITHIASIS**

"Nephrolithiasis" is derived from the Greek nephros- (kidney) lithos (stone) = [**kidney stone**](https://www.medicinenet.com/kidney_stone_pictures_slideshow/article.htm). Stones form in the kidneys are called **nephrolithiasis.** Common cause of [**blood in the urine**](https://www.medicinenet.com/blood_in_urine/article.htm) and [**pain**](https://www.medicinenet.com/pain_management/article.htm) in the abdomen, flank, or groin is kidney stone. Kidney stones occur in 1 in 10 people at some time in their life.

The stone development is related to increased excretion of stone-forming components such as calcium, oxalate, urate or cystine.

Kidney stone can be as smaller as grain and may be excreted through urine. And as big as may cause obstruction and require surgery.

 **Population at risk of developing nephrolithiasis**

The population which have the following habits are at the risk of developing nephrolithiasis.

**POPULATION WITH LACK OF WATER USE**

Enough urine is required to dilute the things that can turn in to kidney stones. Drinking less water and sweating a lot can make your pee darker in color. Its color should be pale yellow or clear.

If you’ve had a stone before, you should make about 8 cups of urine a day. So aim to down about 10 cups daily, since you lose some fluids through sweat and [breathing](https://www.webmd.com/lung/how-we-breathe). Swap a glass of [water](https://www.webmd.com/a-to-z-guides/features/wonders-of-water) for a citrus drink. The citrate in lemonade or orange juice can block stones from forming.

## Population with following Diet

Diet has big role in stone development.

The most common type of kidney stone happens when [calcium](https://www.webmd.com/drugs/2/drug-1575/calcium%2Boral/details) and oxalate stick together when your [kidneys](https://www.webmd.com/kidney-stones/picture-of-the-kidneys) make urine. Oxalate is a chemical that’s in many healthy foods and vegetables. Population eating the following diet in excess may develop stones

* Spinach
* Rhubarb
* Grits
* Bran cereal
* Tomato’s
* Water high in minerals and calcium

Drinking milk does not cause kidney stones. If you eat or drink calcium-rich foods (like milk and [cheese](https://www.webmd.com/food-recipes/ss/slideshow-say-cheese)) and foods with oxalate at the same time, it helps your body better handle the oxalate. That’s because the two tend to bind in the gut instead of in the [kidneys](https://www.webmd.com/a-to-z-guides/rm-quiz-kidneys), where a stone can form.

**Population consuming high Sodium.**

**Population who use high amount of table salt** has increase chances of stone development . those who eat salty snacks, canned foods, packaged meats, and other processed foods.

**Population consuming high Animal**[protein](https://www.webmd.com/fitness-exercise/guide/good-protein-sources)**.**

**Population with highly acidic urine can also cause.** Excess of Red meat and shellfish can make uric acid in your body rise. This can collect in the joints and cause [gout](https://www.webmd.com/arthritis/arthritis-gout) or go to your kidneys and make a stone. More importantly, excess animal protein raises your urine’s calcium level and lowers the amount of citrate, both of which encourage stones.

**Population with gut Problems**

Stones are the most common kidney problem in people with [inflammatory bowel disease](https://www.webmd.com/ibd-crohns-disease/inflammatory-bowel-syndrome) like [Crohn](https://www.webmd.com/ibd-crohns-disease/crohns-disease/default.htm)’s disease and [ulcerative colitis](https://www.webmd.com/ibd-crohns-disease/ulcerative-colitis/default.htm). Bowel problems can give you [diarrhea](https://www.webmd.com/digestive-disorders/digestive-diseases-diarrhea), so you make less pee. Your body may absorb extra oxalate from the intestine, so more gets in your urine.

## Population with Obesity

Obese people have high risk of developing kidney stones. When you are above your BMI for example 30 then have higher risk of developing kidney stones.

**Population with** [**Type 2 diabetes**](https://www.webmd.com/diabetes/type-2-diabetes-guide/type-2-diabetes).

 It can make your urine more acidic, which encourages stones.

**Population with gout**

GOUT condition makes uric acid build up in the [blood](https://www.webmd.com/heart/anatomy-picture-of-blood) and form crystals in the joints and the kidneys. The kidney stones can become large and very painful.

**Population with Hyperparathyroidism.**

[Parathyroid glands](https://www.webmd.com/a-to-z-guides/thyroid-and-parathyroid-glands) increased secretion of hormones can cause raise in calcium levels in your [blood](https://www.webmd.com/a-to-z-guides/rm-quiz-blood-basics) and urine. This may lead to kidney stone formation

**Population with Renal tubular acidosis.**

 This kidney problem causes too much acid to build up in the body.

## ****Population with**** Medications

Some that can cause stones include:

* Certain [antibiotics](https://www.webmd.com/cold-and-flu/rm-quiz-antibiotics-myths-facts), including [ciprofloxacin](https://www.webmd.com/drugs/2/drug-7748/ciprofloxacin%2Boral/details) and sulfa antibiotics
* Some drugs to treat [HIV and AIDS](https://www.webmd.com/hiv-aids/default.htm)
* Certain [diuretics](https://www.webmd.com/hypertension-high-blood-pressure/guide/diuretic-treatment-high-blood-pressure) used to treat [high blood pressure](https://www.webmd.com/hypertension-high-blood-pressure/default.htm). But some thiazide-type diuretics actually help prevent stones.

**Population with family history**

People with family history of kidney diseases are more prone to nephrolithiasis then those with no family history.

**. Give surgical management of kidney stones.**

**Surgical management of kidney stones.**

**Ureteroscopic surgery.**

* involves the placement of a ureteral stent
* (a small tube extending from the bladder, up the ureter and into the kidney) to provide immediate relief of an obstructed kidney
* Ureteroscopy is typically performed under general anesthesia, and the procedure usually lasts from one to three hours.
* If the stone is small, it may be snared with a basket device and removed whole from the ureter. If the stone is large, or if the diameter of the ureter is narrow, the stone will need to be fragmented, which is usually accomplished with a laser. Once the stone is broken into tiny pieces, these pieces are removed.

## Advantages of Ureteroscopy

Ureteroscopy can treat stones located at any position in the ureter and kidney. Additionally, ureteroscopy allows the treatment of stones that cannot be seen on an x-ray. Certain patients who cannot be treated with ESWL or PERC, such as those who cannot safely stop taking blood thinners, women who are pregnant, and the morbidly obese, can be treated by ureteroscopy.

**Percutaneous NephroLithotomy (PCNL)**

* It is the preferred technique for treating larger kidney stones (over 2cm in diameter) located within the kidney. It involves keyhole surgery that is performed through a 1cm incision in the skin
* Before you undergo percutaneous nephrolithotomy, your doctor will perform several tests. Urine and blood tests check for signs of infection or other problems, and a computerized tomography (CT) scan determines where the stones are in your kidney.
* 

**open surgery**

The **surgeon** uses an incision in the person's abdomen or side to reach the **kidney** and remove the **stones**

 

QUESTION NO 3

**Q3. Give lab and radiological investigations for intestinal obstruction. what can be possible surgical management of intestinal obstruction.**

ANSWER

Any condition that interferes with normal propulsion and passage of intestinal contents is called intestinal obstructions

* **Physical exam.**

 Your doctor will ask about your medical history and your symptoms. He or she will also do a physical exam to assess your situation. The doctor may suspect intestinal obstruction if your abdomen is swollen or tender or if there's a lump in your abdomen. He or she may listen for bowel sounds with a stethoscope.

**LAB TEST FOR INTESTINAL OBSTRUCTION**

**COMPLETE BLOOD COUNT**

Laboratory studies are directed at evaluating the dehydration and electrolyte imbalance that may occur as a consequence of large-bowel obstruction (LBO), as well as at ruling out ileus as a diagnosis.

Routine complete blood cell (CBC) count, serum chemistries, and urinalysis should be evaluated. A serum lactate level should be ordered if bowel ischemia is a consideration

* [**Electrolyte**](http://www.cancer.gov/Common/PopUps/popDefinition.aspx?id=44338&version=Patient&language=English)**panel:**
* A [blood test](http://www.cancer.gov/Common/PopUps/popDefinition.aspx?id=688783&version=Patient&language=English) that measures the levels of electrolytes, such as [sodium](http://www.cancer.gov/Common/PopUps/popDefinition.aspx?id=44731&version=Patient&language=English), potassium, and chloride.
* [**Urinalysis**](http://www.cancer.gov/Common/PopUps/popDefinition.aspx?id=46641&version=Patient&language=English)**:**
* A test to check the color of [urine](http://www.cancer.gov/Common/PopUps/popDefinition.aspx?id=46642&version=Patient&language=English) and its contents, such as sugar, protein, red blood cells, and white blood cells.

**RADIOGRAPIC INVESTIGATION**

* **X-ray.**

 To confirm a diagnosis of intestinal obstruction, your doctor may recommend an abdominal X-ray. However, some intestinal obstructions can't be seen using standard X-rays.

* **Computerized tomography (CT).**

 A CT scan combines a series of X-ray images taken from different angles to produce cross-sectional images. These images are more detailed than a standard X-ray, and are more likely to show an intestinal obstruction.

* **Ultrasound.**

 When an intestinal obstruction occurs in children, ultrasound is often the preferred type of imaging. In youngsters with an intussusception, an ultrasound will typically show a "bull's-eye," representing the intestine coiled within the intestine.

* **Air or barium enema.**

An air or barium enema is basically enhanced imaging of the colon that may be done for certain suspected causes of obstruction. During the procedure, the doctor will insert air or liquid barium into the colon through the rectum. For intussusception in children, an air or barium enema can actually fix the problem most of the time, and no further treatment is needed

Types of surgery for bowel obstruction include:

* **Surgical resection:**

 Removal of the obstruction is necessary when there is a mass, such as a tumor.

* **Removal of adhesions:**

If you have scar tissue squeezing your intestines from the outside, this often requires careful incisions to cut them away, although scar tissue can return again.

* **Stent placement:**

A stent, which is a tube that holds the intestine open, may be placed inside the intestine to allow passage of food and stool and to prevent another blockage. This may be necessary when a bowel obstruction is recurrent or when the intestines are severely damaged.3﻿

* **Colostomy/ ileostomy:**

If your intestines are damaged or inflamed, a permanent or temporary ileostomy or [colostomy](https://www.verywellhealth.com/what-you-need-to-know-about-colostomy-surgery-1941708), which is an artificial opening in your abdomen for waste or stool evacuation, may be needed. Sometimes, these are temporary structures needed to prevent a severe gastrointestinal infection from spreading throughout the body. However, it is possible that the ends of the intestines cannot be reconnected, and these openings may be needed for the long term.

* **Revascularization:**

 Ischemic colitis may require revascularization, which is repair of the blocked blood vessels that supply blood to the intestines.

Question No 4

**Q4**. **What are the clinical manifestations of subarachnoid hemorrhage. Explain GCS .**

 ANSWER

CLINICAL MENIFESTATION

**THUNDER CLAP HEADACHE**

The classic symptom of subarachnoid hemorrhage is [thunderclap headache](https://en.wikipedia.org/wiki/Thunderclap_headache) (a headache described as "like being kicked in the head", or the "worst ever", developing over seconds to minutes). This headache often pulsates towards the [occiput](https://en.wikipedia.org/wiki/Occiput) (the back of the head).About one-third of people have no symptoms apart from the characteristic headache, and about one in ten people who seek medical care with this symptom are later diagnosed with a subarachnoid

**Vomiting**

Patient may present the sign of vomiting.

**Nuchal rigidity**.

impaired neck flexion resulting from muscle spasm (not actual**rigidity**) of the extensor muscles of the neck; usually attributed to meningeal irritation.

**Nuchal rigidity** is the inability to flex the neck forward due to **rigidity** of the neck muscles; if flexion of the neck is painful but full range of motion is present, **nuchal rigidity** is absent.

**Neck stiffness**

 usually presents six hours after initial onset of SAH.

**Rise in intracranial pressure**

 Isolated [dilation](https://en.wikipedia.org/wiki/Pupillary_response) of a pupil and loss of the [pupillary light reflex](https://en.wikipedia.org/wiki/Pupillary_light_reflex) may reflect [brain herniation](https://en.wikipedia.org/wiki/Brain_herniation) as a result of rising [intracranial pressure](https://en.wikipedia.org/wiki/Intracranial_pressure) (pressure inside the skull).[[4]](https://en.wikipedia.org/wiki/Subarachnoid_hemorrhage#cite_note-VanGijn2007-4) [Intraocular hemorrhage](https://en.wikipedia.org/wiki/Intraocular_hemorrhage) (bleeding into the eyeball) may occur in response to the raised pressure

[**Oculomotor nerve**](https://en.wikipedia.org/wiki/Oculomotor_nerve)**abnormalities**

 Affected eye looking downward and outward and [inability to lift the eyelid on the same side](https://en.wikipedia.org/wiki/Ptosis_%28eyelid%29)) or

Common Clinical manifestations of a subarachnoid hemorrhage include:

* Trouble speaking
* Drooping eyelid
* Confusion and trouble concentrating
* Sensitivity to light
* Neck stiffness
* Seizures
* Loss of consciousness
* Double vision
* Nausea or vomiting
* Severe headache — the worst headache pain you've ever had that feels different from other headaches

The symptoms of a subarachnoid hemorrhage may look like other conditions or medical problems.

A **brain aneurysm** (which can lead to a subarachnoid hemorrhage) can cause these symptoms:

* Loss of hearing or trouble with balance
* Seizures
* Trouble with memory
* Pain surrounding the eye
* Changes in your vision
* Dilated pupils
* Weakness or numbness on one side of your body

**Explain GCS .**

# **Glasgow coma scale: definition**

### Definition

The Glasgow coma scale (GCS) is a reliable and universally comparable way of recording the conscious state of a person. Three types of response are measured, and added together to give an overall score. The lower the score the lower the patient's conscious state. The GCS is used to help predict the progression of a person's condition.

The three responses measured are:

* **Best motor response - maximum score of 6**
* **Best verbal response - maximum score of 5**
* **Eye opening - maximum score of 4**

The lowest score for each category is 1, therefore the lowest score is 3 (no response to pain + no verbalisation + no eye opening).

A GCS of 8 or less indicates severe injury, one of 9-12 moderate injury, and a GCS score of 13-15 is obtained when the injury is minor.

**Grades of Best Motor Response**

6 Carrying out request ('obeying command') -patient does simple things you ask.
5 Localising response to pain.
4 Withdrawal to pain - pulls limb away from painful stimulus.
3 Flexor response to pain - pressure on nail bed causes abnormal flexion of limbs - decorticate posture.
2 Extensor posturing to pain - stimulus causes limb extension - decerebrate posture.
1 No response to pain.

**Grades of Best Verbal Response**

5 Oriented - patient knows who and where they are, and why, and the year, season and month.
4 Confused conversation - patient responds in conversational manner, with some disorientation and confusion.
3 Inappropriate speech - random or exclamatory speech, with no conversational exchange.
2 Incomprehensible speech - no words uttered, only moaning.
1 No verbal response.

**Eye Opening**

4 Spontaneous eye opening.
3 Eye opening in response to speech - that is, any speech or shout.
2 Eye opening in response to pain.
1 No eye opening.

**Once the individual eye, verbal, and motor responses are summed, the final score indicates the following level of brain injury:**

* Minor, GCS ≥ 13
* Moderate, GCS 9 – 12
* Severe, with GCS ≤ 8

QUESTION NO 5

* **Q5. Enumerate vital clinical signs for confirmation of appendicitis. How can you manage a patient with acute appendicitis.**

ANSWER NO 5

**Appendicitis**

Appendicitis is an inflammation of the appendix, a finger-shaped pouch that projects from your colon on the lower right side of your abdomen.

Appendicitis causes pain in your lower right abdomen. However, in most people, pain begins around the navel and then moves. As inflammation worsens, appendicitis pain typically increases and eventually becomes severe.

Although anyone can develop appendicitis, most often it occurs in people between the ages of 10 and 30. Standard treatment is surgical removal of the appendix

**Vital clinical signs for confirmation of appendicitis.**

* Sudden pain that begins on the right side of the lower abdomen
* Sudden pain that begins around your navel and often shifts to your lower right abdomen
* Pain that worsens if you cough, walk or make other jarring movements
* Nausea and vomiting
* Loss of appetite
* Low-grade fever that may worsen as the illness progresses
* Constipation or diarrhea
* Abdominal bloating
* Flatulence

### Abdominal pain

Appendicitis usually involves a gradual onset of dull, cramping, or aching pain throughout the abdomen.

As the appendix becomes more swollen and inflamed, it will irritate the lining of the abdominal wall, known as the peritoneum.

This causes localized, sharp pain in the right lower part of the abdomen. The pain tends to be more constant and severe than the dull, aching pain that occurs when symptoms start.

However, some people may have an appendix that lies behind the colon. Appendicitis that occurs in these people can cause lower back pain or pelvic pain.

### Mild fever

Appendicitis usually causes a fever between 99°F (37.2°C) and 100.5°F (38°C). You may also have the [chills](https://www.healthline.com/symptom/chills).

If your appendix bursts, the resulting infection could cause your fever to rise. A fever greater than 101°F (38.3°) and an increase in heart rate may mean that the appendix has ruptured.

### Digestive upset

Appendicitis can cause nausea and vomiting. You may lose your appetite and feel like you can’t eat. You may also become constipated or develop severe diarrhea.

If you’re having trouble passing gas, this may be a sign of a partial or total [obstruction of your bowel](https://www.healthline.com/health/intestinal-obstruction). This may be related to underlying appendicitis.

**Manage a patient with acute appendicitis.**

Appendicitis is almost always treated as an emergency.  Surgery to remove the appendix, which is called an [appendectomy](https://www.webmd.com/digestive-disorders/video/appendectomy), is the standard treatment for almost all cases of appendicitis.

Generally, if your doctor suspects that you have appendicitis, they will quickly remove it to avoid a rupture. If you have an abscess, you may get two procedures: one to drain the abscess of pus and fluid, and a later one to take out the appendix. But some research shows that treating acute appendicitis with [antibiotics](https://www.webmd.com/cold-and-flu/video/josephson-antibiotics) may help you avoid surgery.

There are two types of appendectomy: open and laparoscopic. The type of surgery your doctor chooses depends on several factors, including the severity of your appendicitis and your medical history.

### Open Appendectomy

During an open appendectomy, a surgeon makes one incision in the lower right side of your abdomen. Your appendix is removed and the wound is closed with stiches. This procedure allows your doctor to clean the abdominal cavity if your appendix has burst.

Your doctor may choose an open appendectomy if your appendix has ruptured and the infection has spread to other organs. It’s also the preferred option for people who have had abdominal surgery in the past.

### Laparoscopic Appendectomy

During a laparoscopic appendectomy, a surgeon accesses the appendix through a few small incisions in your abdomen. A small, narrow tube called a cannula will then be inserted. The cannula is used to inflate your abdomen with carbon dioxide gas. This gas allows the surgeon to see your appendix more clearly.

Once the abdomen is inflated, an instrument called a laparoscope will be inserted through the incision. The laparoscope is a long, thin tube with a high-intensity light and a high-resolution camera at the front. The camera will display the images on a screen, allowing the surgeon to see inside your abdomen and guide the instruments. When the appendix is found, it will be tied off with stiches and removed. The small incisions are then cleaned, closed, and dressed.

Laparoscopic surgery is usually the best option for older adults and people who are overweight. It has fewer risks than an open appendectomy procedure, and generally has a shorter recovery time.