UNIT 4 EXAMINATION OF SWELLING, LUMPS AND JOINTS

Structure

4.0 INTRODUCTION

In the previous unit you have learnt about various tests which are carried out in case a patient is suffering with fever of unknown origin as well as how to collect sample through vein puncture. You will also come across other common problems at your health facility, such as swelling which is sometime visible and sometime not visible but patient would tell that she/he is feeling lumpiness on touching. Hence, this unit would enable you to identify most common lumps and their assessment so that early identification alert and alarm you to take appropriate measures.

4.1 OBJECTIVES

After completing this unit, you shall be able to :

- systematically examine common lumps and swellings;
- describe common lumps and swellings;
- recognise and early identify the following conditions: Lipoma, Hernia, Sebaceous Cyst and Abscess, Thyroid Lumps, Lymph Nodes, Breast Lumps, joint swellings; and

- appropriately refer in the following conditions: Lipoma, Hernia, Sebaceous Cyst & Abscess, Thyroid Lumps, Lymph Nodes, Breast Lumps, joint swellings.

4.2 PREPARATION OF THE PATIENT FOR PHYSICAL EXAMINATION

Let us now discuss preparation of the patient for physical examination as given below:

Follow these steps:

- Ask the patient to indicate the position of the lump(s) and any previous lumps
- Explain the procedure to the patient
- Ensure that exposure is adequate
- Ensure patient's dignity
- Examination of a female patient should be done in the presence of a female attendant or a nurse
- Ask the patient if there is any tenderness
- Ask about any recent change in the lump

4.3 PROCEDURE OF PHYSICAL EXAMINATION

This is divided into various sections and these are: lump history, general examination, Look, Feel, Move (plane of attachment), Specific tests, and Regional Lymph nodes.

4.3.1 Lump History

Lump history - for taking history of swelling and give your findings in the remarks column.

Ask the following questions:

S.No.	Question	Remarks
1.	When was the lump first noticed? (Duration)	
2.	What made the patient notice the lump? (First symptom)	
3.	What are the symptoms related to the lump? (Other symptoms)	
4.	Has the lump changed in size, texture since it was first noticed? (Progression)	
5.	Does the lump ever disappear (persistence)? What makes the lump to reappear?	
6.	Has the patient ever had any other lumps? (Multiplicity)	

S.No.	Question	Remarks
7.	What does the patient think caused the lump? (Cause)	
8.	Is there loss of bodyweight?	
9.	Is there recurrence after operation?	

4.3.2 General Examination

Check for general well-being, gait, pulse, temperature, pallor, order of limbs, eyelids, any enlarged lymph-nod.

4.3.3 Examination of Lump/Swelling

Let us now discuss about examination of Lump in details.

1) **Look (observation)**

- Location of lump/position : _____
- Contour: Regular/Irregular
- Pulsation: Check for Aneurism/High Blood Flow
- Number of lumps/swellings : _____
- Shape : Spherical/ Hemispheric/Pear or Kidney shape.
- Size of lump : _____
- Colour and texture of overlying skin: Check for smoother and shiny or thick and rough skin, scars, ulcers, discharging sinuses, peaud'orange)
- Check for Abnormal vessels : _____
- Impulse on cough : _____

2) **Feel the lump/swelling (palpation)**

- Check temperature by touching and compare it with nearby / adjacent normal skin other than the lump swelling.
- **Tenderness:** Feeling pain on touch (Yes/No)
- **Surface:** Check for smoothness/regularity/nodularity.
- **Edge:** Check for well defined or indistinct edges.
- **Consistency:** Check for stony hard/ firm/ rubbery/spongy/soft consistency.
- **Cough impulse:** Reducible (Ask the patient to cough and see if the lump increase in size or not. If size increases by to reduce it by spreading the lump to see whether such as a bony prominence, joint etc.). It is reducable or not e.g. hernias – don't forget cough impulse.
- **Position :** Measured from a landmark.
- **Size:** Measure with a measuring tape.
- Thrill or pulsation: (Yes / No)

3) **Press:**

- **Pulsatility:** Check whether the lump is pulsatile or not. It should be expansile pulsation or transmitted pulsation).

- **Compressibility:** Disappear on pressure and reappear on release.
- **Reducibility:** Reappear only on application of another force e.g. cough.
- **Fluctuation:** It is checked by 2 fingers moved apart when middle area pressed.

4) **Percussion:**

Put three fingers (index, middle and ring) of left hand over the lump or swelling. Using middle finger of right hand tap gently over the middle finger of left hand over the lump and listen to the sound. It can be dull or resonant. Dull indicates solid nature. Resonance indicates presence of gas.

5) **Move (This is to check plane of attachment)**

Skin tethering (To see skin fixed with tissues lying beneath. Attempt to pick up a fold of skin over the swelling and compare with other side).

Deeper structures (attempt to move the swelling in different planes relative to surrounding tissues).

Muscles and tendons (palpate the swelling whilst asking the patient to use the relevant muscle).

6) **Listen:** (put a stethoscope over the lump and listen for bruit, bowel sounds etc. Bruit is the fine gurgling sound of blood flow in a blood vessel.

7) **Trans illumination:** Throw light from a bulb of the torch to the lump. If it is illuminated indicates presence of clear fluid.

8) **Regional Lymph Nodes**

You must be aware of the main routes of lymphatic drainage and the relevant regional lymph nodes. Palpate the lymphnodes and note their characteristics in terms of size, number, feel, tenderness, fixation to tissues etc.

9) **Examine surrounding tissue**

- Look and palpate draining group of lymph nodes
- Check sensation in surrounding area
- Check power of related muscle
- Distal effects (swelling, decreased size and loss of function etc.)

  Find state of local tissue, arteries, pain and discolouration of skin to black indicates less blood supply or ischemia, nerves (nerve if affected leads to muscle wasting and change in sensation such as tingling, numbness), lymphatic (blockage of lymphatic system leads to oedema), bones and joints (if bones and joints are affected leads to erosion).

4.4 EXAMINATION OF NECK SWELLING (THYROID GLAND)

Let us now discuss the examination of swelling in the neck region as given below.

Follow these steps:

- Wash hands

- Introduce yourself
- Explain about examination to the patient
- Take consent
- Appropriately position and expose the neck by bending head backwards to some extent
- Perform general inspection
- Identify any scars on the neck – previous surgery *(e.g. thyroidectomy)*
- Observe for any obvious masses in the neck
- Ask for change in voice – weak or hoarness and its duration, whether it is increased over time or not.
- If a mid-line lump is present:
    - Ask the patient to swallow some water – *thyroid masses will rise / as will thyroglossal cysts*
    - Ask patient to protrude tongue –*thyroglossal cyst will rise / thyroid masses will not*

Thyroid gland

- Place the 3 middle fingers of each hand along the midline of the neck below the chin.
- Locate the upper edge of the thyroid cartilage ("Adam's apple").
- Move inferiorly until you reach the cricoid cartilage / ring.
- The first 2 rings of the trachea are located below the cricoid cartilage and the thyroid isthmus overlies this area.
- Palpate the thyroid isthmus using the pads of your fingers (not the tips).
- Palpate each lobe of the thyroid in turn by moving your fingers out laterally from the isthmus.
- Ask the patient to swallow some water, whilst you feel for symmetrical elevation of the thyroid lobes which rises during swallowing (asymmetrical elevation may suggest a unilateral thyroid mass).
- Ask the patient to protrude their tongue once more (if a mass is a thyroglossal cyst, it will rise during tongue protrusion).

Neck lumps:

- Most often caused by enlarged lymph nodes (consider sources in the head and neck, chest, abdomen, lymphoma).
- Thyroid disease.

4.5 CLINICAL – BREAST EXAM (CBE)

Let us now discuss the clinical breast examination (CBE).

Any lady who comes with a problem related to breast or any lady who is above 30 years of age and comes to you for any other problem you may perform CBE. Ask the patient to undress waist upwards and then examine the breasts.

Follow steps of Clinical Self-Exam (CBE).

Steps of a clinical breast exam are same as those of Breast-self examination. The steps are given below:

Step 1:

Ask the lady to stand in front of you with your shoulders straight and her arms on the hips and look at her breasts:

- To check size, shape, and colour of skin
- To find out that they are evenly shaped without visible distortion or swelling

Consult doctor if there is :

- Dimpling, puckering, or bulging of the skin over breast.
- Changed position or an inverted nipple (pushed inward instead of sticking out).
- Redness, rash, or swelling of the breasts.

Step 2:

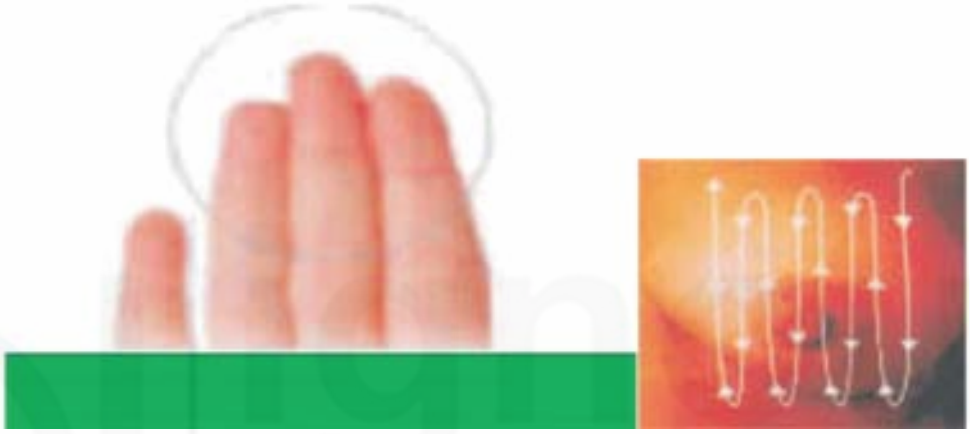
- Now, ask her to raise her arms and look for the same changes.
- Look for any dimpling of skin or in-drawing nipple.

Step 3:

- Gently squeeze each nipple between your finger and thumb.
- Consult doctor if nipple discharge is milky or yellow fluid or blood.

Step 4:

- Ask the lady to lie down and then examine her breasts one by one.
- Use a firm, smooth touch with the first few fingers of your hand, keeping the fingers flat and together.
- Cover the entire breast from top to bottom, side to side—from collarbone to the top of the abdomen, and from the armpit to the cleavage.
- Be sure to feel all the breast tissue:
    - Follow a pattern to be sure that you cover the whole breast. Begin at the nipple, moving in larger and larger circles until you reach the outer edge of the breast. Also move your fingers up and down vertically, in rows. Begin examining each area just beneath your skin with a very soft touch, and then increase pressure so that you can feel the deeper tissue, down to your ribcage using fingers only.



- Breast lumps: These could be
    - Fibroadenomas (lumps are mobile, also known as 'the breast mouse'). These are benign breast tumours.
    - Simple cysts.
    - Fat necrosis.
    - Fibroadenosis (lumpy breasts with pain).
    - Breast abscesses.
    - Breast cancer.

4.6 ABDOMINAL LUMP

An abdominal lump is a swelling or bulge that emerges from any area of the abdomen. It most often feels soft, but it may be firm depending on its underlying cause.If a patient has a fever, vomiting, or pain around an abdominal lump, you may need emergency care.

Common causes of Abdominal lump

A hernia causes the majority of lumps in the abdomen. Hernias often appear after you have strained your muscles by lifting something heavy, coughing for a long period, or being constipated.

There are several types of hernias. These are groin hernia (inguinal and femoral), umbilical hernia, incisional hernia, epigastric hernia and hiatal hernia.

Hernia swelling

A hernia is the exit of an organ, such as the bowel, through the wall of the abdominal cavity in which it normally resides. Hernias are of different types. Most commonly they involve the abdomen, specifically the groin. Groin hernias could be inguinal or femoral. Other hernias include hiatus, incisional, and umbilical hernias. This type of hernia causes pain or discomfort especially with coughing, exercise, or going to the toilet. Often it gets worse throughout the day and improves when lying down. The hernia swelling becomes larger while coughing or lifting heavy weight. ***The main concern is strangulation, where the blood supply to part of the bowel is blocked***. This usually produces severe pain and tenderness of the area. Hiatus or hiatal hernias often result in heartburn but may also cause chest pain or pain during eating.

Risk factors for the development of a hernia include:

- smoking
- chronic obstructive pulmonary disease
- obesity
- pregnancy
- peritoneal dialysis
- collagen vascular disease, and previous open appendectomy.

Hernias are partly genetic and occur more often in certain families. It is unclear if groin hernias are associated with heavy lifting. Hernias can often be diagnosed based on signs and symptoms. Occasionally medical imaging is used to confirm the diagnosis or rule out other possible causes. The diagnosis of hiatus hernias is often done by endoscopy.

The signs and symptoms of a hernia can range from noticing a painless lump to the severely painful, tender, swollen protrusion of tissue that you are unable to push back into the abdomen in case of strangulated hernia. Abdominal or pelvic pain can be part of the symptoms of many hernias.

Reducible hernia

- It may appear as a new lump in the groin or other abdominal area.
- It may cause pain but is not tender when touched.
- Sometimes pain precedes the discovery of the lump.
- The lump increases in size when standing or when abdominal pressure is increased (such as coughing).
- It may be reduced (pushed back into the abdomen) unless very large.

Irreducible hernia

- It may be an occasionally painful enlargement of a previously reducible hernia that cannot be returned into the abdominal cavity on its own or when you push it.
- Some may be chronic (occur over a long term) without pain.
- An irreducible hernia is also known as an incarcerated hernia.
- It can lead to strangulation (blood supply being cut off to tissue in the hernia).

- Signs and symptoms of bowel obstruction may occur, such as nausea and vomiting.

Strangulated hernia

- This is an irreducible hernia in which the blood supply to the trapped in intestine is cut off.
- Pain is always present, followed quickly by tenderness and sometimes symptoms of bowel obstruction such as nausea and vomiting.
- The affected person may appear ill with or without fever.
- This condition is a surgical emergency.

Hernia Examination: You need to examine hernia, in standing as well as lie down positions as given below:

Always start with the patient STANDING.

i) **Inspect of abdomen while standing**

- Exposure is very important – ensure that you can see from umbilicus to knees atleast.
- Look in the groin for evidence of a swelling. If you can't see one, then ask the patient which side he has noticed a lump.
- Look for evidence of previous hernia surgery – oblique scar often hidden in pubic hair line.
- Any other obvious skin changes, swellings, lumps that may be relevant.
- Ask the patient to look over their shoulder and cough (so they don't cough into your face).
- As they cough, look at the lump to see if there is a cough impulse.

Palpate standing

- Palpate the swelling
- Find out if you can get above it (If not, it suggests of originating in scrotum/ spermatic cord e.g. hydrocoele)
- Feel to find out if it is soft, fluctuant, Pulsatile etc.
- Ask the patient again to cough and palpate for a cough impulse
- Ensure that you feel the opposite side, as bilateral hernias are very common, often one being much more prominent

Auscultate

- If possible auscultate the lump. If the hernia contains parts of intestine, you will hear gurgling sound intestine.

ii) **Lie the patient down**

Inspection

- Again, inspect the groin to ensure there is nothing missed from standing inspection.
- Offer to palpate the abdomen for any cause of raised intra-abdominal pressure such as ascites or mass, which can predispose to herniation.

Palpation

- Having identified a hernia, the next task is to assess if it is indirect or direct.
- Ask the patient if they can reduce the hernia.
- Palpate the groin to assess if the hernia has completely reduced.
- Tell the patient that you will palpate some bony points.
- Feel for the anterior superior iliac spine and the pubic tubercle, to identify the mid-inguinal point which earmarks inguinal ligament.
- Palpate the midpoint of the inguinal ligament (the surface landmark for the deep inguinal ring) and ask the patient to cough.
- If the hernia is CONTROLLED by pressure over the deep inguinal ring, it suggests that the hernia is indirect.
- In order to confirm that you were in fact controlling the hernia, ask the patient to cough without pressure to ensure that the hernia now appears.
- Offer to examine the scrotum, where you should palpate the testis and epididymis that completes the examination of the hernia, but offer to examine the abdomen for other masses etc. All newly discovered hernias or symptoms that suggest a hernia should prompt a visit to the doctor. Hernias, even those that ache, if they are not tender and easy to reduce (pushed back into the abdomen), are not necessarily surgical emergencies, but all have the potential to become serious. Referral to a surgeon should generally be made so that the need for surgery can be established and the procedure can be performed as an elective surgery. It will avoid the risk of emergency surgery when hernia become irreducible or strangulated.

Umbilical Hernia

An umbilical hernia is very similar to an inguinal hernia. However, it's more localised and occurs around the navel. This type of hernia is most common in babies and will often disappear later on as the their abdominal wall heals. The classic sign of an umbilical hernia in a baby is outward bulging of the belly near navel when they cry.

Surgery is required to fix an umbilical hernia if it doesn't heal on its own by the time a child is 3 years old. The possible complications are similar to those of an inguinal hernia as given below:

i) Incisional Hernia

An incisional hernia is one that appears due to a surgical cut that has weakened the abdominal wall. It requires corrective surgery to avoid complications.

ii) **Haematoma**

A haematoma is a collection of blood under the skin that results from broken blood vessels. Haematomas are typically caused by an injury. If a haematoma occurs over abdomen, a bulge and discoloured skin may appear. Haematomas typically resolve without needing treatment.

iii) **Lipoma**

A lipoma is a lump of fat that collects under the skin. It feels like a firm, rubbery bulge that moves slightly when pushed. Lipomas grow very slowly, can occur

anywhere on the body, and are almost always benign. They can be removed surgically if large, but in most cases, surgery isn't necessary.

iv) **Undescended Testicle**

During foetal development, the testicles form in the abdomen and then descend into the scrotum. In some cases, one or more of them may not fully descend. This may cause a small lump near the groin in newborn boys and can be corrected with hormone therapy or surgery to bring the testicle into position.

v) **Tumor**

Although very rare, a benign or cancerous tumor on an organ in the abdomen or in the skin or muscles can cause a noticeable lump. Whether it requires surgery or another type of treatment depends on the type of tumor and its location.

vi) **Ascites**

Ascites is the accumulation of fluid (usually serous fluid which is a pale yellow and clear fluid) that accumulates in the abdominal (peritoneal) cavity. The abdominal cavity is located below the chest cavity, separated from it by the diaphragm. Ascitic fluid can have many sources such as liver disease, cancers, congestive heart failure, or kidney failure.

The most common cause of ascites is advanced liver disease or cirrhosis. Although the exact mechanism of ascites development is not completely understood, most theories suggest portal hypertension (increased pressure in blood flow to the liver) as the main contributor. The basic principle is similar to the formation of oedema elsewhere in the body due to an imbalance of pressure between inside the circulation (high pressure system) and outside, in this case, the abdominal cavity (low pressure space). The increase in portal blood pressure and decrease in albumin (a protein that is carried in the blood) may be responsible in forming the pressure gradient and resulting in abdominal ascites. The most common cause of ascites is cirrhosis of the liver. Many of the risk factors for developing ascites and cirrhosis are similar. The most common risk factors include hepatitis B, hepatitis C, and long standing alcohol abuse. Other potential risk factors are related to the other underlying conditions, such as congestive heart failure, malignancy, and kidney disease.

There may be no symptoms associated with ascites especially if it is mild (usually less than about 100–400 ml in adults).

- As more fluid accumulates, increased abdominal girth and size are commonly seen.
- Abdominal pain, discomfort, and bloating are also frequently seen as ascites becomes larger.
- Shortness of breath can also happen with large ascites due to increased pressure on the diaphragm and the migration of the fluid across the diaphragm causing pleural effusions (fluid around the lungs).

Refer appropriatity if a patient with ascites need further investigations and should be seen by primary care physician and then depending on the suspected cause by the specialist concerned to higher health facility.

vii) **Hepatomegaly or splenomegaly (enlargement of liver and spleen)**

Enlarged liver and spleen has a variety of causes including infections, blood disorders, liver disease, and cancers.

Enlarged liver and spleen may be caused by infections including bacterial infections, infections caused by parasites such as malaria, kala-azar, acute hepatitis (liver inflammation, Cancer, Leukemia (cancer of the blood or bone marrow), Lymphoma, Sickle cell crisis and Congestive heart failure etc.

If on examination of the abdomen such a mass is suspected patient need to be refered to a primary care physician and then as per the requirement to a specialist.

Lymph node enlargement

Lymph node is a small, round or bean-shaped cluster of cells covered by a capsule of connective tissue. The cells have an important role to play in fighting agaisnt bacteria or viruses and protect the body.

Lymph nodes are located in groups, and each group drains a specific area of the body. You may more likely notice swelling in certain areas, such as the lymph nodes in your neck, under your chin, in your armpits and in your groin. The site of the swollen lymph nodes may help in identifying the underlying cause. Lymph node swellings are common in children. Depending on which group of lymph nodes are enlarged i.e. cervical, axillary or inguinal it helps you localise the infection.

The most common cause of swollen lymph nodes is an infection, particularly a viral infection. However, there are other types of infections, including parasitic, bacterial, and other possible causes of swollen lymph nodes. They include:

Common infections

- Throat infections e.g. tonsillitis, pharyngitis etc.
- Measles
- Ear infections
- Infected tooth
- Skin or wound infections, such as cellulitis or erysipelas
- Human immunodeficiency virus (HIV) (the virus that causes AIDS)
- Infectious mononucleosis

Most of the swellings remain after the patient recovers from infection but if it is big in size, multiple, hard to touch or matted, in such a case further investigation is required such as Fine needle aspiration cytology (FNAC).

Abscess

An abscess is a tender mass generally surrounded by a coloured area from pink to deep red. Abscesses are often easy to feel by touching. The middle of an abscess is full of pus and debris. Cutaneous abscesses are most commonly caused by Staphylococci.

Painful and warm to touch, abscesses can show up any place on the body. The most common sites are armpits, areas around anus, around a tooth, breast, and the groin. Inflammation around a hair follicle can also lead to the formation of an abscess, which is called a boil (furuncle).

Unlike other infections, antibiotics alone will not usually cure an abscess. In general, an abscess must be opened and drained for treatment. Sometimes draining

occurs on its own, but generally it must be opened by a procedure called incision and drainage (I&D).

Abscesses are caused by obstruction of oil (sebaceous) glands or sweat glands, inflammation of hair follicles, minor breaks and punctures of the skin. Germs get under the skin or into these glands, which causes an inflammatory response as body's defences try to kill these germs.

The middle of the abscess liquefies and contains dead cells, bacteria, and other debris. This area begins to grow, creating tension under the skin and further inflammation of the surrounding tissues. Pressure and inflammation cause the pain.

People with weakened immune systems get certain abscesses more often. Those with any of the following are all at risk for having more severe abscesses. This is because the body has a decreased ability to fight against infections.

- Chronic steroid therapy
- Chemotherapy
- Diabetes
- Cancer
- AIDS
- Severe burns
- Severe trauma
- Alcoholism or IV drug abuse

Other risk factors for abscess include exposure to dirty environments, exposure to persons with certain types of skin infections, poor hygiene, and poor circulation.

Abscess Symptoms

Most often, an abscess becomes a painful, compressible mass that is red, warm to touch, and tender.

- As some abscesses progress, they may "point" and come to a head so that you can see the material inside and then spontaneously rupture.
- Most will continue to get worse without care. The infection can spread to the tissues under the skin and even spreads into the bloodstream.
- If the infection spreads into deeper tissue, fever can develop.

Abscess Treatment: Self-Care at Home

- If the abscess is small (less than 1 cm or less than a half-inch across), applying warm compresses to the area for about 30 minutes 4 times daily may help.
- Do not attempt to drain the abscess by squeezing or pressing on it. This can push the infected material into the deeper tissues.
- Do not stick a needle or other sharp instrument into the abscess center, because you may injure an underlying blood vessel or cause the infection to spread.

Incision and drainage may be performed by you as follows on an abscess:

The area around the abscess should be numbed with medication. It is often difficult

to completely numb the area, but local anaesthesia can make the procedure almost painless.

- You may give some type of sedative if the abscess is large.

  The area should be cleaned with an antiseptic solution and sterile towels placed around it.

  You should then cut open the abscess and totally drain pus and debris.

  Once the sore has been drained, insert packing sterile gauze into the remaining cavity to minimise any bleeding and keep it open for a day or two.
- Place a sterile bandage over the packing, and instruct the patient about home care.
- Most people feel better immediately after the abscess is drained.
- If the patient still experiences pain, the doctor may prescribe pain relieving pills for home use over the next 1–2 days.

Once treated, the abscess should heal

- Many people do not require antibiotics.
- The pain often improves immediately and subsides.
- Wound care instructions may include wound repacking, soaking, washing, or bandaging for about 7 to 10 days. This usually depends on the size and severity of the abscess.
- After the first 2 days, drainage from the abscess should be minimal to none. All sores should heal in 10–14 days.

4.7 GENERAL GUIDELINES FOR MANAGEMENT OF A LUMP

This will depend on a number of factors such as the site of the lump, the features of the lump and, ultimately, the diagnosis. Discussion with the patient will enable the patient to make choices about treatment. The following options may be considered:

- Reassurance and no treatment (for example, dermatofibroma, lipoma, some sebaceous cysts).
- Routine investigation to confirm a diagnosis (for example, hydroceles, goitre and other benign conditions).
- Routine excision biopsy (for example, sebaceous cysts, troublesome lipoma, persistent ganglia).

Urgent referral for investigation and/or treatment for the following conditions:

Any lump with features of malignancy:

- Hard, fixed and irregular lumps (often painless).
- Lumps with a history of rapid growth.
- Breast lumps.

- Testicular lumps.
- Abscesses (for incision and drainage).

The management of some lumps (particularly at some sites and based on clinical findings) may be discussed with consultant doctors. A typical example is lymphadenopathy in the neck. Benign pathology can present in an alarming fashion with hard, fixed and rapidly growing lumps which suggest malignancy. Urgent referral for further investigation is needed to make a diagnosis and, to allay anxiety.

Investigations

Diagnosis can be made clinically for some lumps and investigations are often not required. But when excision or radiological investigations are required, patient needs to be referred to appropriate higher facility where these investigations are available. You should have a list of referral centres for the important investigations at your centre.

- Excision biopsy may be all that is required, when it is not clinically contra-indicated.
- Total Blood Count, blood glucose and microbiological investigations may be appropriate for suspected infection.
- Aspiration followed by microscopy, culture and cytological examination may be indicated for some cystic swellings.
- Fine-needle aspiration for cytological examination may be used for some solid tumours.
- Ultrasound and Doppler studies may be used for suspected vascular lesions.
- CT and MRI scanning may be necessary to clarify the site or location and diagnosis of some lumps, particularly where deeper structures may be involved with or without organ involvement.

4.8 HISTORY TAKING AND MUSCULOSKELETAL EXAMINATION (JOINT SWELLING)

Swellings of the joints with pain especially that of knee in middle and old age is common.

Chief Complaint

You may ask a leading question “where is the pain”?

History of Present Illness

It is best to get the history in a chronological manner. If the patient chooses to start at present, let him continue. You can then prompt the patient to tell about the onset of their illness and tell their story moving towards the present.

Ask other aspects of diagnostic significance and related to pain that include:

- **Date of onset and type of onset:** Suddenly or slowly.
- **Location of pain:** Joints/ Muscles/Soft Tissues.
- **Presence of swelling:** Before and Now.
- **Subsequent course:** Progressive/Intermittent/Remittent.

- **Present status:** Better/ Same/Worse.
- **Impact on their lives.** There are four basic spheres of activity:
  - Activities of daily living (ADLs) - dressing, bathing, eating, transfers;
  - Household tasks - cooking, cleaning, washing, gardening, etc.;
  - Employment - physical or sedentary, clerical work, repetitive tasks;
  - Recreational/hobbies - gardening, walking, cycling, etc.

  Ask about historical clues when evaluating any joint related complaint such as:
  - What is the functional limitation?
  - Symptoms within a single joint or affecting multiple joints
  - Acute or slowly progressive
  - If injury, what was the nature of injury
  - Any prior problems with the affected area
  - Any other systemic symptoms
- **Associated complaints:** These are patient's concerns. The subsequent review of system will systemically touch on broad issues that may shed light on their present illness.
- **Previous management and response:** Previous rheumatology care is particularly relevant.
- **Morning stiffness:** Generalised that last for > 30 minutes. This is considered to be an expression of inflammatory arthritis.

Past Medical History

Previous medical problems (e.g., hypothyroidism, diabetes mellitus) may be related to the present complaint or influence the rheumatologic management. Family History of Autoimmune diseases can cluster in a family (hypothyroidism, rheumatoid arthritis, Systemic Lupus Erythematosis (SLE). Gout, ankylosing spondylitis and psoriasis are examples of diseases which can be inherited.

Social history

Place the patient's illness in a social context. Management can vary depending on these factors (such as, family support, financial status, personal habits etc.).

Knee swelling: Such as the medical term for this condition is knee effusion. Water in the knee joint can result from an injury, chronic overuse, or disease.

Potential Causes of Knee Swelling

The most common causes of knee swelling are injuries, osteoarthritis, and bursitis, as well as less common causes are Baker's cysts and reactive arthritis.

Whether knee pain is mildly annoying or painfully debilitating, a person will want to identify the likely cause and treat the symptoms to help mitigate future problems. Chronic or long-standing swelling may lead to joint tissue damage, cartilage degradation, and bone softening. Therefore, treatment is usually recommended.

Knee pain: Pain is the most commonly reported symptom of knee osteoarthritis. The description of the pain will depend on the patient's condition and situation. For example, the pain may come and go or there may be a chronic low level of pain with intermittent flare-ups of more intense pain. The pain may be experienced as **dull and aching or as sharp and intense**, and it is usually worse with certain activities that place additional strain on the joint, such as when bending down or walking up stairs. Typically, the knee pain can be lessened with rest and an ice compress.

Knee stiffness: Bone friction and swelling in the knee joint makes the knee stiff and less flexible. The range of motion of the knee can become more limited. A person with moderate to advanced knee osteoarthritis may find it difficult to straighten out his or her knee. Some people may only experience stiffness in the knee in the morning or after sitting for a long period. Stiffness may or may not be accompanied by swelling and **inactivity makes it worse**. Knees can become stiff after sleeping or sitting for a long period of time. People with knee osteoarthritis often find stiffness and pain are most noticeable when they try to get out of bed in the morning or out of a chair after a long period of sitting.

Knee swelling: When knee cartilage wears away with aging, the femur and tibia (and sometimes patella) bones can rub together, resulting in irritation and swelling of the knee (which can be due to fluid in the knee joint). A swollen knee may be accompanied by a sensation of warmth, which can range from warm to burning. The knee may even become red and warm to touch.

Knee popping or crunching: Feeling a crunching or hearing a popping sound when bending the knee, such as when bending down into a squat, are signs that cartilage has worn away and is not protecting the bones from friction. This symptom is known as crepitus.

4.9 COMMON CONDITIONS DUE TO KNEE SWELLING

Let us now discuss common conditions due to knee swelling.

4.9.1 Injury to the Knee

A trauma to the knee's bones, ligaments, tendons, bursae, meniscus, or articular cartilage can cause pain and swelling. Serious injury can cause blood to flood into the knee joint, leading to significant swelling, warmth, stiffness, and bruising.

This condition is called "haemarthrosis" and warrants urgent medical care. A patient should also seek medical attention if knee pain is severe, if the affected leg cannot bear weight, or if the patient suspects a bone may be broken.

4.9.2 Knee Osteoarthritis

Degeneration of the cartilage of the knee joint can result in an overproduction of joint fluid, causing the knee to swell. A swollen knee due to knee osteoarthritis is typically accompanied by pain.

4.10 NON-SURGICAL TREATMENTS FOR KNEE OSTEOARTHRITIS

i) **Physical therapy and exercise**

A graduated and targeted knee strengthening and stretching exercise programme is an integral component of the treatment of knee osteoarthritis. Most often, an appropriately trained physical therapist or doctor will evaluate the biomechanical issues that may contribute to the individual's knee arthritis pain. Then, they will teach the patient specific exercises to stretch inflexible soft tissues, and others that build the muscles around the knee, thereby supporting the knee joint and making it less prone to further cartilage loss.

ii) **Activity modification**

While exercise is important to treating knee osteoarthritis, some types of activities and exercise will aggravate the knee joint pain. Certain high impact activities should be avoided and alternatives may be identified. For example, jogging may be replaced with cycling or swimming, both of which exert less force on the knee joint. While painful knee osteoarthritis may cause someone to be less active in general, less physical activity is not advisable. In fact, inactivity is harmful, and often leads to other health problems. The health care provider will work with the individual patient to find alternatives or adaptive strategies to perform daily activities that trigger pain.

iii) **Periodic rest**

A little discomfort is to be expected as stiff joints loosen up in the morning or at the beginning of exercise. However, when people feel terrible pain that limits their ability to function normally, they should generally not try to "work through the pain." Moderate to severe knee pain is a signal that the joint needs a rest. If there is no pain relief within 2 to 4 days of rest, then the individual should seek medical attention.

iv) **Warm or cold compress**

Using a warming pad or whirlpool for a few minutes can loosen a stiff knee joint making activity easier. Icing the knee joint for 15 or 20 minutes after activity can decrease swelling and provide some immediate pain relief. Heating or icing a joint is focused on improving symptoms temporarily, it does not alleviate the underlying causes of knee pain and will not improve long-term joint function by itself.

v) **Weight loss**

A diet to maintain normal weight as per height can pay big dividends for those suffering from knee osteoarthritis. For every extra pound (nearly 500 gms) on the body an extra three pounds of pressure is exerted on the weight-bearing knee joint. Gaining 10 pounds can mean 30 pounds more pressure on the knee with each step, as well as a significantly greater chance of developing osteoarthritis. For people who are overweight or obese, losing weight will significantly reduce pressure and strain on the knee joint, thereby alleviating symptoms and perhaps slowing progression of knee osteoarthritis.

Medications and Injections for Knee Osteoarthritis

The medications listed below can be used to alleviate the symptoms of knee osteoarthritis. Doctor and patient should discuss medication in the context of the

patient's lifestyle, severity of pain and medical history. Potential side effects and interaction with other drugs and vitamins/supplements should also be considered.

Analgesics: Pain relievers, such as acetaminophen (Tylenol) have relatively few side effects and relieve pain but do not reduce swelling.

Non-steroidal anti-inflammatory drugs (NSAIDs): Patients with moderate to severe pain may benefit from anti-inflammatory medications, such as aspirin, ibuprofen), naproxen or COX-2 inhibitors to reduce the swelling and inflammation that are a common cause of pain. These drugs carry significant side effects and should be used with caution in elderly persons, in particular in those with high blood pressure and heart problems.

Topical analgesics: These creams can be applied directly onto the knee. Some involve topical preparations of NSAIDs that are considered to have less risk of side effects.

4.11 LET US SUM UP

This unit deals with examination of swelling, lump and knee joint. The patient should be communicated about the procedure involved and get informed consent for examination. Basic steps involved in the examination after taking a brief history are: look (observe), feel (palpate), press, percussion, snore, listen, trans-illuminate, check regional lymph nodes and examine surrounding tissues. This unit also shows steps in examination of neck swelling, thyroid, clinical breast examination, abdominal lump (focuses on hernia ascites, tumor, liver and splenomegaly. It also discusses about identification of common lumps, management of abscess, knee joint swelling at home.

Remember the important steps involved in examination of a lump are Look (observation), Feel (palpation), Press, Percussion, Move (plane of attachment), Listen, Trans-illumination, Regional Lymph Nodes and Examine surrounding tissue.

4.12 ACTIVITY

Select a patient with history of lump and examine for lumps, document the findings as per assessment in the workbook. Select an elderly patient with history of swelling joints.

Do examination and record the findings. Describe the methods used for assessment. Record the history in workbook.

4.13 REFERENCES

1) Reading material for ASHA, BOOK NO8,Role in prevention and control of non-communicable diseases, MOHFW, 2009.

2) Bailey & Love's Short Practice of Surgery by Norman S Williams. Published by Taylor & Amp; Francis, 26th edition.

3) Hutchison's clinical methods by Michael Glynn and William M. Drake Publisher : Elsevier; Twenty third edition (1 June 2012).

4) Manual for training in cancer control. Manual for facilitators, Directorate of Health Services, Ministry of Health and Family Welfare, Government of India, November 2005.

Lumps and swellings in the testicles are a relatively common symptom in boys and men, and can have a number of different causes. The vast majority of testicular lumps and swellings are caused by benign (non-cancerous) conditions that may not need treatment, but it's important to know what's normal for you and to see your GP if you notice any changes in your testicles so they can try to identify the cause. What causes testicular lumps and swellings?Â Most testicular lumps and swellings are caused by benign (non-cancerous) conditions, although occasionally they can be a symptom of testicular cancer. It's important to see your GP if you notice a lump or swelling in one of your testicles so they can try to identify the cause and arrange any further tests if necessary. This examination is a head-to-toe assessment to detect conditions that may not in themselves pose an immediate threat to life, but if left unrecognized and untreated, could become life threatening. b. This secondary survey should be completed before beginning stabilization and transport, if necessary, of the athlete. c. Injuries such as bleeding, spinal injury, and shock are examples of conditions that.Â 3. If pain is present, its location, character, duration, variation, aggravation, intensity, radiation, and course? a. If possible, point to the painful area with one finger. b. Nerve pain tends to be sharp and/or burning. c. Bone pain is localized and piercing. d. Muscle pain is often dull, aching and referred to another area. e. Pain that subsides during activity usually indicates. Examination and processing of human semen. FIFTH EDITION. WHO Library Cataloguing-in-Publication Data. WHO laboratory manual for the examination and processing of human semen - 5th ed. Previous editions had different title : WHO laboratory manual for the examination of human semen and sperm-cervical mucus interaction. 1.Semen - chemistry. 2.Semen - laboratory manuals.