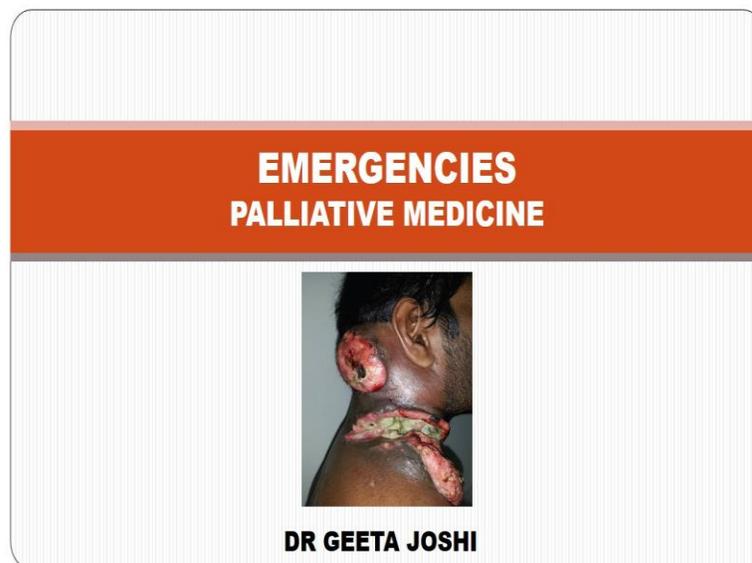


Basic Certificate in Palliative Care
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Week-08
Lecture 06: Emergencies in Palliative Medicine

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Namaste (Hindi word meaning greetings), this is week number 8 and lecture number 5. Today, we are going to discuss some emergency situations in palliative care and which may threaten life of the patient.

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Palliative Care Emergencies

- Those situations which threatens life,
or
- If left untreated, results in a poor quality of life.
- Aim is to
 - Recognise the emergency
 - Manage the Emergency

Emergencies in Palliative Care

1. Spinal Cord Compression
2. Superior Vena Cava Compression
3. Haemorrhage
4. Seizers
5. Hypercalcemia

So, palliative care emergencies are basically 4 to 5 situations. First is spinal cord compression, another is superior vena cava compression, massive hemorrhage, seizures or hypercalcemia. So, these are the all those situation which threatens the life or if left untreated result in poor quality of life. So, aim is to recognize the situation and manage it as far as possible.

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Factors to consider

- Identify the emergency
- Correct the correctable
- General condition (Performance status)
- Trajectory of illness
- Communication with carers
- Benefits versus risks of treatment
- Patients' autonomy and family involvement

General Principle Of Management... EEMMA

- Evaluation
- Explanation
- Management
- Monitor
- Attention to Detail

First of all, whenever you are handling a emergency situation, you have to keep few factors in mind. Firstly, try to identify the emergency, correct the correctable, general condition of the patient is evaluated and trajectory of illness, what is the status of the disease or stage of the disease should be evaluated. Communication with the carers is very very important in emergency situation as well and benefit versus risk involved should be judged. So, whatever intervention you plan to take up, you have to weigh the benefits against risk and patient's autonomy and family involvement in decision making is important.

So, it works on the EEMMA principle. EEMMA means evaluation, explanation, management, monitoring and attention to detail.

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Common Palliative Care Emergencies

- Superior Vena Cava Obstruction (SVCO)
- Spinal Cord Compression (SCC)
- Haemorrhage
- Seizures
- Hypercalcemia
- Stridor, Choking
- Increased intracranial tension
- Acute breathlessness
- Delirium

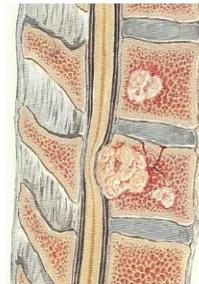
As we said earlier, the few of the emergencies in palliative care situation, palliative care patients are superior vena cava compression, spinal cord compression, hemorrhage, seizures, hypercalcemia, stridor and choking very common in head and neck cancer patients, increase intracranial tension, acute breathlessness and delirium.

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• Spinal Cord Compression (SCC)

Spinal Cord Compression (SCC)

- Occurs in advanced malignancy
- Main problem is lack of recognition
- 3-5% of patients with cancer develop SCC
- Breast, lung & prostate- accounts for 50%
- Sites
 - Thoracic: (50-70 %)
 - Cervical: (10-30%)
 - Lumbo Sacral: (20-30 %)



Coming to first emergency spinal cord compression, it occurs in advanced stage of malignancy, particularly patients who are having metastasis in the spine, vertebral column or a tumor pressing in the spinal canal pressing on the nerve root or on the compression of the vertebra. Usual sites are thoracic, second on the list is lumbosacral and cervical.

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Spinal Cord Compression

Causes

- Vertebral metastases and collapse 85%
- Extra vertebral tumour (extension into epidural space)
- Intramedullary tumour (from spinal cord)
- Intradural tumour (from meninges)
- Epidural metastases

Common malignancies which causes bone metastasis

- Prostate
- Breast
- Lung
- Myeloma
- Kidney

Vertebral metastasis is the main reason of the spinal cord compression and it accounts for 85 percent of spinal cord compression cases. Extra vertebral tumor, intramedullary tumors are another reason and intradural tumors from meninges arising from the meninges also can cause spinal cord compression and epidural metastasis. So, common malignancies which you which comes with this type of emergency are prostate, breast, lung, myeloma and kidney. So, whenever a patient of prostate, breast, lung, myeloma and kidney comes to you, you must keep in mind about the various metastasis they might be having in vertebral column and which can give rise the situation of spinal cord compression.

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Signs and symptoms of SCC

- Depend on the area of the cord affected
- Signs can be subtle to gross
- More than one level can be affected
- Compression below L2 affects the cauda equina
- **Features**
 - Pain (earliest symptom)
 - Weakness
 - Sensory changes - tingling and numbness
 - Sphincter dysfunction / perianal numbness
 - Altered Deep Tendon reflexes

Coming to signs and symptoms of spinal cord compression, it depends on which area is affected. So, it can be a just starting point or it may be a very worsened situation where you cannot help the patient. Particularly patient will complain of pain at the site of compression, severe pain. Then weakness in the lower limbs and there will be sensory changes in the lower limbs like tingling, numbness and sometimes even bladder bowel dysfunction is present and there will be altered tendon reflexes.

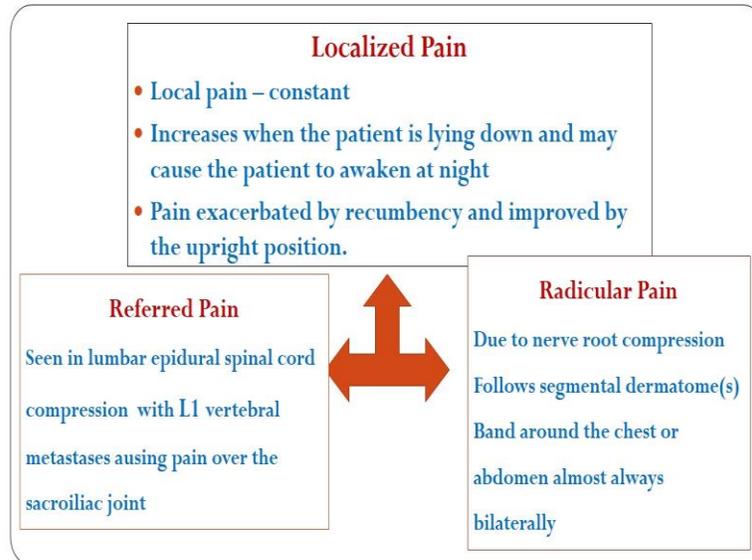
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Pain

- Pain in 96 % - appears weeks to months before onset of symptoms
- Three types of pain
 - Localised
 - Referred
 - Radicular

Pain is the predominant sign of spinal cord compression, it is about in 96 percent of the patient and it might have started few months ago and if it is neglected patient will come only with the pain and spinal cord compression. So, the pain can be localized, referred or radicular.

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Localized constant pain increases when patient is lying down and may cause the patient to awaken at night and pain exaggerate by recumbency and improved by upright position. Referred pain, it is seen in lumbar epidural spinal cord compression with L1 vertebra and it is referred to the sacroiliac joint on the same side. And radicular pain, it is usually because of the nerve root compression from the vertebra from where it is arising and it is referred to the lower limb.

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Clinical signs : Motor deficits

- Second most common symptom.
- Weakness begins in the legs, regardless of the spinal cord compression site .
- More marked proximally than distally early in the course.
- Describe the muscles affected as heavy or stiff
- Increasing difficulty in performing activities such as stair climbing

There is along with pain you will find there is a signs of motor weakness. So, weakness in both the lower limbs more proximally then slowly it goes towards a distal part of the lower limb and patient will describe that there is a heaviness in the muscles of lower limb.

So, and there will be increasing in difficulty in walking, climbing or getting up from the chair and bed.

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Clinical Signs: Sensory deficits

- Usually concurrent with the development of weakness or shortly afterward.
- Paresthesias, numbness, loss of sensation.
- Begin in the toes and ascend in a stocking like fashion, eventually reaching the level of the lesion

Along with this there will be usually sensory deficit which you have to evaluate elicit in both the lower limbs which can be parasthesias, numbness or loss of sensation and it begins in the toes and ascends in stalking like fashion and eventually reaches the level at which the spinal cord compression has occurred.

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Clinical signs: Autonomic disturbances

- **Generally late and never the sole presenting symptom of epidural spinal cord compression.**
- **Bowel and bladder dysfunction- constipation and urinary retention.**
- **Bowel and bladder incontinence- poor prognosis**

Autonomic nerve compression is very rare and it generally it is it comes very late in the phase of compression and the sole presenting symptom of epidural spinal cord compression this is predominantly seen and this because of this autonomic nerve distribution and its compression there is a bladder bowel dysfunction. So, there will be constipation and urinary retention. Few patient has incontinence of the bladder bowel and this leads to a very poor prognosis of the patient.

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Prognostic Indicators

Good Prognostic indicators

- One who can walk before treatment

Poor prognostic indicators

- Paraplegia
- Loss of sphincter function
- Rapid onset (Suggesting infarction)

It is a good one of the good prognostic indicator also one who can walk before treatment has got good prognosis. So, but if it already starts with the paraplegia or loss of sphincter function and rapidly deterioration then the prognosis is not very good and patient is less likely to recover from this complication of spinal cord compression.

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Investigations

- Magnetic Resonance Imaging (MRI)
 - ✓ It is the best diagnostic method
 - ✓ It is non-invasive.
- Plain X rays
 - ✓ Not sensitive enough to show early MSCC.
 - ✓ Consider economic backgrounds

First and foremost investigation is MRI it is a base diagnostic method it is non-invasive. Plain X-ray not sensitive enough to show early metastasis in and metastatic spinal cord

compression, but sometimes it may be considered when the because of the unavailability of resources.

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Goals of Treatment

- Pain relief
- Maintenance or improvement in neurological status
- Spinal column stabilisation

Goals of treatment is to first of all pain relief, minimize the complications of paresthesia or paraplegia and stabilize the spinal column.

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Treatment options

- Steroid therapy
- Pain relief measures
- Radiotherapy
- Surgical resection/decompression
- Adjuvant Chemotherapy or hormonal therapy is indicated in chemosensitive malignancies

Start with steroid therapy this is the first and foremost it is always at hand and you can do it immediately. Give pain relief measure and then consider for radiotherapy to the affected spine. Surgical resection and decompression may be a method of choice in very fit patient or who has only few levels of compression or few vertebrae's are involved. And adjuvant chemotherapy or hormonal therapy can be considered when the tumor is chemosensitive.

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Steroid therapy

- Steroids are used as an effective adjunct to radiotherapy
 - ✓ Start at diagnosis even in homecare
 - ✓ To reduce spinal cord oedema and inflammation
 - ✓ To reduce neurological deficits and pain control
 - ✓ Dose??? (Low dose Vs High dose)

Steroids are used as an effective adjuvant to the radiotherapy also and to the chemotherapy also and this will help in reducing the oedema around the spinal cord and inflammation. It will reduce the neurological deficit and pain control and we can consider even very high dose like 16 to 32 milligram of dexamethasone given intravenously immediately.

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Management continues.....

- Ambulatory status (Immobilise)
- Anti-embolic stockings and prophylactic anti-coagulant therapy
- Moving and handling
- Skin assessment
- Bladder care
- Bowel care
- Multi-professional team

First and foremost immobilize the patient, do not allow him to walk. Then anti-embolic stockings and prophylactic anticoagulant therapy may be considered if you are thinking about DVT. Moving and handling should be managed with the assistant, skin assessment, bladder care, bladder bowel care if patient is already bladder bowel involvement with constipation or urinary retention. And so, multi professional team is involved in management of spinal cord compression which can be a radiation oncologist, surgical team or ortho oncologist or neuro oncologist are involved.

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Prognosis on functional outcome

- Pre-treatment ambulatory status is the most important predictor
- Rapid development of motor deficits.
(Poor prognosis)
- Visceral metastasis (poor prognosis)

As said earlier the prognosis on functional outcome. Pre-treatment depends on the how the patient was before the treatment whether he was ambulatory or not and rapid whether it is development if it is a motor deficit the prognosis is poor and visceral metastasis again the prognosis is very poor.

So, spinal cord compression take home message make the patient immobile, give him pain relief, give the large dose of steroid then consider for MRI. After the results of MRI one can consider three types of treatment whether to go for surgery for fixation of the spine, whether to go for radiation to the vertebral column which is involved or to go for chemotherapy. Of course, reassurance, bladder bowel care, skin care and support to the patient and family is very very important.

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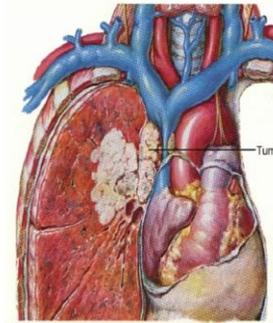
Superior Vena Caval Compression Syndrome

Coming to second emergency it is superior vena cava compression.

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Superior Vena Caval (SVC) Syndrome

- Superior Vena Cava syndrome is an array of symptoms
- Caused by the impairment of blood flow through the superior vena cava to the right atrium.



Superior vena cava compression syndrome is an, in this you will find number of symptoms present and this happens because of the impaired blood flow through the superior vena cava to the right atrium. Here is the biggest vein superior vena cava which drains blood from the upper limb and from the brain and the blood, desaturated blood enters into the into heart. If this vein is compressed by a tumor here is the tumor it will obstruct the blood flow from the head, neck and upper arm and this will give lots of signs and symptoms and thus because of the plethora of signs and symptoms it is called syndrome. So, that is why it is called superior vena cava syndrome.

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Superior Vena Caval Syndrome

- SVCS was first described by William Hunter in 1757
- Tuberculosis and syphilitic aneurysms of the ascending aorta were the cause.
- Now malignancy is the cause
- Extrinsic tumour or Node causing compression
- Direct Invasion of vessel wall
- Intraluminal thrombus as Complication of Central Line



This was first described by William Hunter in 1757 usually it tuberculosis and syphilitic aneurysms was used to be the cause of superior vena cava syndrome in those days.

But now malignancy is the first cause of superior vena cava syndrome. So, any tumor or node pressing on the vena cava or directly invading the vessel wall will cause or intraluminal thrombus in in that particular vessel which will give this complication. So, here the patient will have puffiness of face edema all over both the limbs upper limbs and neck also there is lots of swelling because the blood is not drain into the heart.

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Common causes

- Mostly tumours / nodes within the mediastinum
- Usually associated with malignancies
 - Bronchogenic carcinoma (80%)
 - Lymphoma (15%)
 - Metastatic breast, esophagus,
 - Colorectal(5%),
 - Seminoma

As discussed earlier it is because of the tumor or node and usually associated with the malignancy of bronchogenic carcinoma, lymphoma, metastasis of blood, breast, esophagus, colorectal and sominoma.

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Symptomatology

- The severity of the syndrome depends on the rapidity of onset of the obstruction and its location.
- The more rapid the onset, the more severe the symptoms because the collateral veins do not have time to distend to accommodate an increased blood flow.
- Generally takes several weeks for the venous collaterals to dilate sufficiently to accommodate the blood flow of the superior vena cava.

Severity of the syndrome depends on the rapidity of onset of the obstruction. If the obstruction is happening slowly the severity of the symptom will not be seen, but if suddenly happens suppose there is a bleeding into the tumor or suddenly there is a

increase in size of the tumor there will be sudden compression of the vena cava and it will cause rapid onset and more severe symptoms. And generally takes several weeks for vena cava to get collateral to develop. So, collaterals are not developed and that is why obstruction to the vena cava form will give you all these symptoms.

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Clinical signs and symptoms

Early

- Periorbital edema, Conjunctival suffusion, facial swelling
- Cough, dyspnea
- Dysphagia
- Chest pain

Later

- Engorged neck and chest veins
- Tachypnea
- Plethora
- Upper extremity edema
- cyanosis

Severe

- Headache, blurred vision, altered mental status, seizure, papilledema

Diagnosis of SVCCS

- History and Clinical exam
- X'Ray Chest
- CT Scan or MRI
- Doppler ultrasound
- Angiography

So, in early stage the symptoms will periorbital edema surrounding eyes patient will get swelling or edema. Then facial swelling, cough, dyspnea, dysphagia difficult to swallow the food and chest pain these are the early signs.

Later on patient will get engorged neck, huge swelling in the neck, chest veins, tachypnea, plethora of signs and symptoms, upper extremity edema and cyanosis because of the obstruction to the blood flow patient's blood will become blue and there will be cyanosis notice in upper limbs. In severe cases there will patient will have throbbing headache, blurred vision, altered mental status, seizures and papilledema. Diagnosis of this condition is made by seeing the previous CT scan or PET scan reports and seeing the location of the tumor location of the metastasis you may anticipate this patient is likely to get superior vena cava compression. If most of the time these investigations are available, but on the day when the patient comes to you as a emergency you can take proper history and clinically examine the patient. Take a chest x-ray, CT scan or MRI of the thorax is

also considered where you can see the location of the tumor and compression which part of the vena cava is compressed. Doppler ultrasound of the neck for the big vessels will also show you the signs of compression or angiography may be considered which is a last resort.

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SVCO: Approach

- Important to establish a diagnosis
- SVCO does not usually imply immediate threat to life,
 - except when trachea or pericardium is compromised
- Emergency treatment indicated if:
 - Compromised airway
 - Decreased cardiac output
 - Cerebral dysfunction

What is the how you will manage this situation? First of all it is important to establish diagnosis. This may not be immediate threat to the life, but patient is very restless, dyspneic and having severe pain also sometimes and some most of the time trachea is also compromised there is some pressure on the trachea also. So, difficulty in breathing and also he is very in distress very much in distress. Firstly evaluate the airway whether patient is able to breathe, evaluate the oxygen level and start your treatment. So, if airway is compromised you may have to go for tracheostomy or any other means to secure the airway so can patient take can breathe. So, emergency treatment is required in this type of situation where airway is also compromised.

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Management

- Bed rest with head elevated
- Oxygen
- Diuretics
- Steroids- medium to high dose
- Chemotherapy
- Radiation
- Intravascular expandable metal stent.
- Lytic therapy if thrombosis
- Venous access in lower limb only

First of all make patient comfortable with head end of the bed elevated, start oxygen, give diuretics. You mind you must remember that whenever you want to give any injections to this patient the venous access should be secured in lower limb and not upper limb because upper limb veins are compressed by the compression. So, in lower limb you secure the venous access and start giving injections if you want to give by parenteral route. Drugs which are given is start with the diuretics, steroids this is medium to very high dose like 16 to 32 milligram of dexona.

If a tumor is chemosensitive short of chemotherapy, radiation is the treatment of choice in many of the tumors which are compressing on the superior vena cava. So, in sometimes intravascular expandable metal stent can also be considered with the help of scope you put the stent right at the compression and lytic therapy of if thrombosis is there and venous access in lower limb only which we discuss.

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Role of diuretics

- Diuretics may give symptomatic relief of edema
- but can ultimately cause systemic complications, such as dehydration

Diuretics gives symptomatic relief reduces the edema, but can ultimately cause systemic complication and dehydration. So, you have to check keep on checking about the dehydration.

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Chemotherapy & Radiotherapy

- Chemotherapy
- Treatment of choice for sensitive tumors such as lymphoma or small cell lung cancer
- RT
- If the obstruction of the SVC is caused by a tumor that is not sensitive to chemotherapy, radiation therapy should be given.

Chemotherapy only to the sensitive tumor, chemotherapy sensitive tumor such as lymphoma or small cell lung carcinoma.

Radiotherapy you can give to any solid tumor and if the obstruction of SVC is caused by a tumor that is not sensitive to chemotherapy or radiotherapy then radiation therapy can be given to all types of superior vena cava tumors compression tumors.

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In children ...

- In adults, the trachea and the right main stem bronchus-rigid
- Children -more susceptible to compression.
- Trachea in children- tolerate little edema before respiratory symptoms occur.
- SVCS- medical emergency

In adults the trachea and right main stem bronchus are rigid, but in children the trachea and bronchi are very soft. So, it can get immediately compressed. So, they have very severe symptoms they may be asphyxiated and they have much more difficulty in breathing and in the children it becomes real medical emergency. So, take home message for the superior vena cava compression, make patient comfortable with head end of the bed elevated, start oxygen give secure the vein in lower limb inject diuretic steroid and then consider the treatment options of chemotherapy or radiotherapy or stenting etcetera. But at the same time keep the family informed involve them in decision making and patient autonomy is always very important whenever you are treating any palliative care patient.

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HEMORRHAGE

Next emergency we are going to talk about is hemorrhage massive hemorrhage means bleeding profuse bleeding and these are the patients who are likely to have profuse bleeding.

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What is the fatal complication that can occur?



Head and neck cancer is number one cancer in most part of India like Gujarat, Northeast States where patient people have habit of chewing gutkha and pan masala and these patient they have got metastatic nodes into the neck. These are the metastatic nodes and

these nodes may be invading the large vessels internal carotid, external carotid, internal jugular vein which are going into the endocranium. So, when the tumor invades into this blood vessel it can rupture the blood vessel and patient will have massive bleeding and it cannot be controlled.

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Causes of bleeding

Occurs in 6-10 % of advanced cancer

- Local vessel damage and invasion
- Systemic process- DIC or Platelet abnormalities , clotting factor deficiencies (Liver)
- Cancer treatments- RT , CT
- Drug treatments –anticoagulants, NSAID
- Local infection within tumor cavities.

So, as discussed cause of bleeding is because of the local vessel damage and invasion. Patient might have some systemic problem DIC or platelet abnormality following chemotherapy or clotting factor deficiency because of the liver metastasis or any other pathology. Cancer treatment itself right radiotherapy and chemotherapy also causes bleeding because of the dysfunction of the platelets. Patient may be on anticoagulants if patient is having DVT or some embolism pulmonary embolism and he is already taking anticoagulants he is likely to bleed and this bleed you cannot stop or normal dose of NSAIDs drugs given for a long time will interrupt the platelet and clotting mechanism. Local infection at the site of the tumor and that will within the tumor cavity it will invade into the blood vessel and cause bleeding.

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Assessment

- Underlying cause(s), the likelihood of reversing or controlling the underlying etiology
- The burden-to-benefit ratio of the treatment
- All in the context of the patient's overall disease burden, life expectancy, and goals of care

So, first of all try to assess the underlying cause. Here also whenever a head and neck cancer patient comes to you with metastasis in the neck you should check the CT scan. In the CT scan you might see that the tumor is abutting the internal carotid artery or pressing on the jugular vein or something like that. So, keep this in mind and these are the patients who are likely to bleed in future if the tumor bursts into or invades the vessels or if the vessel bursts because of the tumor. So, whenever you decide about the treatment sometimes you know head and neck cancer patients have intermittent bleeding from the site of cancer like CA tongue or CA alveolus lower alveolus and this type of patient in as a preventive measure you can do external jugular vein ligation.

This is a very common procedure sometimes done taken up by surgical oncologists and this is as a matter of prevention this small procedure usually done under local anesthesia is taken up and to prevent future bleeding or repeated episodes of bleeding. Whatever decision you want to take you have to keep in mind the general condition of the patient, general status of the disease, life expectancy and goals of care.

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Haemorrhage

- Bleeding may be caused by –trauma, ulceration, inflammation, OR a growth that erodes through a blood vessel
- Bleeding can be external or internal
 - Surface bleeding, Epistaxis, Haemoptysis, Hematemesis Malena, Rectal, Vaginal, Haematuria, Erosion of an artery
- Bleeding exacerbated by coagulopathy associated with the disease or drugs

Bleeding may be caused by trauma, ulceration, inflammation or growth that erodes the blood vessel. It can be external or internal sometimes the big vessel ruptures inside and if the blood does not come out it cannot be seen and sometimes bleeding from the GI tract if any GI tract tumor like tumor of stomach, cancer of stomach or large intestine or a small intestine patient may get malena that is a dark stool, hematemesis, rectal bleeding or vaginal bleeding particularly seen in the cancer of uterus, cervix, haematuria when the cancer of bladder or because of the erosion of artery. So, bleeding from anywhere in cancer patient you have to keep in mind that primary diagnosis and where the metastasis has occurred.

So, bleeding exaggerated by coagulopathy associated with the disease or drug. Again this is coagulopathy is very common in cancer patients, various type of factor deficiency and that can cause coagulopathy. So, you have to keep that thing is also in mind.

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Management

- Identify cause -proper history and examination.
 - Correct the correctable
 - Treat the site
 - Stop any medications making the problem worse
- Management Approach
- Topical treatment
 - Systemic treatment

Management of such bleeding as we discussed you have to keep in mind the disease status, condition of the patient and whether the treatable cause or not then only you should take up the intervention. So, identify the cause with proper history and previous reports correct the correctable treat the site and stop any medication that causes bleeding like NSAID or anticoagulants or aspirin patient sometimes is on aspirin you can you should stop that.

So, management is firstly try to control it locally and then give any systemic treatment which is advisable.

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Topical therapy

- Physical pressure
- Local Medicines
- Adrenaline
- Tranexamic acid, ethamsylate
- Sucralfate paste (Oral or Rectal)

Locally you can apply pressure wherever possible like if patient is bleeding from cancer of stomach you cannot apply pressure, but if it is from outside and where there is a possibility of applying pressure you do that. Local medicine adrenaline a gauze soaked in adrenaline 1 is to 1000 adrenaline solution if it is put into the site of the bleeding in the tumor that may help in causing vasoconstriction and stop bleeding. Tranexamic acid given orally or sucralfate paste by oral or rectal route.

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Management

- Systemic therapy
 - Tranexamic acid
 - Ethamsylate
 - Desmopressin
- Localised therapy
 - Radiotherapy
 - Cryotherapy
 - LASER
 - Embolization
 - Surgery

Systemic therapy contains tranexamic acid, ethamsylate and desmopressin and localized therapy adrenaline gauze, radiotherapy immediate 3 settings of radiotherapy for to for hemostasis purpose cryotherapy, laser, embolization or surgery may be indicated.

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Bleeding as Terminal Event

Preparation/ Advance Care Planning Practical

- Reduce risks
- Have drugs and equipment at hand
- Psychological support
- Be aware of the risk
- Inform other care workers of the risk
- Discuss with patient / carers

Many a times bleeding may be the terminal event particularly in head and neck cancer patient. So, these patients should be evaluate well in advance and treating palliative care physician should keep this complication in mind and prepare the patient and relative to face such situation. So, reduce risk have drug and equipment at hand psychological support beware of the risk inform the care workers of the risk of the bleeding and discuss with patient and carers.

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Bleeding as Terminal Event

- Reduce impact of a bleed
 - Green towels
- Support patient and carers
 - Stay with the patient
- Sedation
 - Midazolam/diazepam/lorazepam/phenobarbitone

As I said in my one of the previous talk also that whenever bleeding you cannot stop it you have to cover the area with a dark towel. So, patient will not see their sight of the bleeding and will become anxious patient and relative also.

Relatives are prepared well in advance and patient is then sedated with morphine, haloperidol or diazepam whatever is required and make him as comfortable as possible.

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Management

- Keep patient, family, staff informed of progress and prognosis
- Unless one can treat the underlying cancer, wound remains unhealed.
- Avoid adherent dressings.
- Keep the wound moist.
- Direct pressure, if actively bleeding
- Medicated dressing possibilities:
 - Topical aminocaproic acid
 - Topical dilute silver nitrate solutions

This is this top points are already discussed like it part of the as a part of management. Keep patient family staff even staff should know doctor might have read that CT scan report that tumor is invading the internal jugular vein, but nursing staff should also know and be prepared for this type of consequences. Unless one can treat the underlying cancer wound remains unhealed. Avoid adherent tracing in this patient very adherent tracing if you pull out the tracing it likely to rupture the vein and vessel cause bleeding. Keep the wound moist, direct pressure if actively bleeding and medical medicated dressing, dressing soaked in a aminocaproic acid or silver nitrate solution, but usually we use adrenaline dressing or a tranexamic acid dressing.

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Management

- Discuss with the patient and family if bleed not stoppable.
- If bleeding is catastrophic, dark towels may reduce anxiety of all involved
- If the patient is distressed, consider sedation

Discuss with the patient and family if bleed is not stoppable, again dark towels and reduce the anxiety of the patient and caregiver.

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Seizures

- **Most common Causes**
 - Primary or metastatic brain tumours
 - CVA / Stroke
 - Pre-existing seizure disorder
- **Less common Causes**
 - Hypoxemia
 - Metabolic: uremia, hypoglycemia, hyponatremia
 - Sepsis
 - Drug or alcohol withdrawal

Another emergency seizures not very common in palliative care situation, but still it can be seen in a patient who are having primary or metastatic brain tumors and who had history of CVA central cranial stroke or pre-existing seizure disorder many of the patient might be having pre-existing seizure disorder and which can worsen with the advanced stage of the disease. Less common causes are hypoxemia, metabolic causes like uremia, hypoglycemia, hyponatremia, sepsis and drug or alcohol withdrawal.

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Approach to seizure management

- **Help avoid harm / trauma**
- **Do not restrain**
- **Do not attempt to insert anything orally**
- **Recovery position after the seizure**
- **Expect drowsiness for a while .**
- **Call for help if seizure lasts more than 5 minutes (it will feel like 30)**

Approach to seizure first of all whenever seizures occurs make the patient safely lie down on the bed you should see that he should not fall or should not harm himself and do not restrain, do not attempt to insert anything orally at that time you do not try to insert the oral airway or give something by mouth. Recovery position after seizures is also important. Expect drowsiness for a while a following seizure patient is likely to become drowsy for a while and call for help if seizure last for more than 5 minutes.

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Management

- History and examination
- Proper Investigations
- Correct the correctable
- Routine prophylaxis for seizures if needed .
- Grand Mal Seizures: Phenytoin is first drug of choice
- Focal Seizures: Carbamazepine is first drug of choice

First of all take proper history whether patient had previous seizures history of seizure and which medication he was telling taking previous CT scan reports whether he has a brain metastasis or cerebral edema or history of radiotherapy given to the for the brain metastasis all such histories are important. Proper investigation go through it correct the correct tables routine profile access for seizure if needed. So, start medications like diazepam, dexona and whatever anti-seizure tablets he was taking. Phenytoin is the drug of choice and in focal seizure it is carbamazepine is the drug of choice.

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Status epilepticus-management

- Protect airway
- Administer Oxygen
- Consider SC or IV or PR
- IF IV line available:
 - Lorazepam 2-4 mg over 2-4 minutes OR
Lorazepam (0.1 mg/kg IV, not faster than 2 mg/minute
Maximum 4mg)
 - Phenytoin load: 20 mg/kg at 25 mg/min
May need to go as high as 30 mg/kg
 - Phenobarb 20 mg/kg at 100 mg/min

Very few seizures go into status epilepticus means continuous seizures lasting for more than 10 minutes 15 minutes in this you protect airway and give oxygen if required.

Consider subcutaneous route or IV route for the injection of the drugs or if IV line is available then you sedate the patient with lorazepam, lorazepam infusion or even pentothal infusion, phenytoin injection and phenobarbital infusion.

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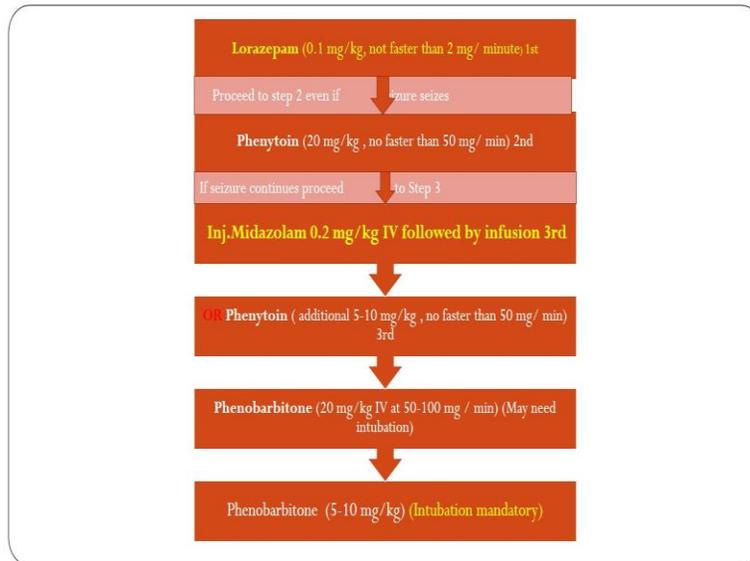
Status epilepticus, management

IV line if unavailable

- Diazepam 10 mg solution PR
- May be repeated q10minutes
- Midazolam SC infusion 1-3 mg/hour
- Consider steroids

If IV line is not available you can look for the subcutaneous route below the skin or per rectal route for a insertion of the diazepam and it can be repeated every 10 minutes and midazolam subcutaneous infusion and consider steroid.

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These are the way in which you have to proceed with the management of the seizures start with lorazepam, then phenytoin, lorazepam, then phenytoin 20 milligram per kg body weight. If not relived give midazolam 0.2 milligram per kg IV followed by a infusion. Again you give additional dose of phenytoin 5 to 10 milligram per kg and then phenobarbitone to be given in form of infusion and when you are giving phenobarbitone or pentothal infusion patient may need securing the airway or may need intubation and oxygenation.

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Hypercalcaemia

- Occurring in approximately 20 to 30% of cancer .
- It occurs in patients with both solid tumors and hematologic malignancies.
- Patients with hypercalcemia due to malignancy often have a poor prognosis.

Last emergency is hypercalcemia which is occurring into the 20 to 30 percent of the cancer patient. It occurs in patients who are having both solid tumor and hematological malignancy as well. Patient with hypercalcemia due to malignancy often have a poor prognosis.

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Normal Serum Calcium

- Normal total serum calcium is 8.5-10.5mg/dl.
- About 40% is bound to proteins, mainly albumin.
- Formulae are available for correcting calcium concentrations for changes in albumin.
- Corrected serum calcium =
 $\text{Measured S Ca}^{++} + 0.022 \times (42 - \text{Albumin gm/L})$
(Oxford Radcliff Hospital Trust)

So, normal total serum calcium is 8.5 to 10.5 milligram per ml and about 40 percent is bound to protein and mainly albumin. Formulae are available for correcting calcium

concentration for a change changes in albumin. So, depending on the albumin level you have to decide the dose of the calcium. So, measured serum calcium plus 0.022 multiplied by 42 minus albumin level. This is the formula given to calculate the dose of calcium you want to inject correct the serum calcium.

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Common causes

- Squamous cell lung cancer,
- Squamous cell head and neck cancers,
- Breast cancer,
- Multiple myeloma,
- T-cell lymphomas,
- Renal cell cancer, and
- Ovarian cancer
- Certain drugs can contribute to hypercalcemia (e.g. thiazides, lithium)

Common causes of the hypercalcemia are squamous cell, lung cancer, squamous cell head and neck cancer, breast cancer, multiple myeloma, T cell lymphoma, renal cell cancer and ovarian cancer and certain drugs like are may contribute to hypercalcemia like thiazides and lithium.

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Hypercalcaemia- Symptoms

- **GI:** nausea, vomiting, constipation;
- **Neurologic:** weakness, lethargy, confusion, coma;
- **Renal:** polyuria, thirst
- **Diagnosis**
- Prompt treatment is initiated in patients who are symptomatic and/or whose calcium is very high (e.g. $\geq 13\text{mg/dl}$)

Symptoms are patient will complain of nausea, vomiting and constipation. There will be weakness, lethargy, confusion, coma. In renal patient might have polyuria and increased thirst. So, it depends on the primary diagnosis and what is the situation of the patient when he comes as a emergency. Prompt treatment is initiated in patient who are symptomatic and whose calcium is very high that is 13 milligram per percentage.

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Treatment

- **Correct the correctable**
- **The first line is HYDRATION with 0.9 % NS**
- **Furosemide**
- **Bisphosphonates - calcium-lowering agents given parenterally**
e.g: Etidronate, pamidronate

First of all hydrate the patient, you give IV fluids with 0.9 percent normal saline and then give diuretics furosemide, then bisphosphonates calcium lowering agent given parenterally.

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Summary

- Information, education and Communication with the patient and family is extremely important for dealing with emergencies.
- Emergencies can happen throughout illness trajectory.
- Management of Palliative Medicine Emergencies emphasises on symptom management than on attempts at reversing the disease process.

So, information, education and communication with the patient and family is extremely important for dealing with emergency.

So, in hypercalcemia also you see the status of the disease, status of the condition accordingly talk to relative, secure the vein, give IV fluid and give bisphosphonate therapy. Emergency can happen throughout illness any time emergency can happen. So, if you have only patient on curative treatment like chemotherapy or radiotherapy, then such emergency can happen and one has to diagnose the emergency and treat promptly. Management of palliative medicine emergencies emphasize on symptom management, then on attempt to reversing the disease process. So, first our aim is to make the patient comfortable, relieve of the symptoms particularly distressing symptoms like pain or dyspnea or bleeding and rather than curing the disease. Thank you very much.