BrienHoldenVisionInstitute

MEDICAL EMERGENCIES

THINK

A person walks into your eye clinic and complains of pain in his chest. What should you do?

Some problems require immediate attention, because they are life-threatening.

You need to know the signs and symptoms of these problems, so you can identify them and immediately refer the person to a medical practitioner.

WHAT YOU WILL LEARN

When you have worked through this unit you should be able to:

- Recognise a medical emergency
- Know what to do in case of a medical emergency.

EMERGENCIES

- A medical emergency is a condition that poses an immediate risk to a person's life or long term health
- These conditions are life threatening and need immediate hospital care
- Not all conditions provide a clear symptom or signal to warn the person that something is wrong.

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THIRD NERVE PALSY

WHAT IS IT AND WHAT CAN CAUSE IT?	• There is damage to the third cranial nerve (a nerve from the brain), which is responsible for controlling some of the muscles responsible for eye movement
	• The third nerve controls the extraocular muscles of the eye that allows us to look up, down or nasally
	• It also plays a role in the mobility of the eyelid and the pupil
	• A person with third nerve palsy will present with sudden onset unilateral ptosis (drooping of the eyelid)
	• Third nerve palsy is fairly common in the elderly and people who suffer from diabetes and/or hypertension
	• It can be caused by:
	  ○ Aneurysm (this is an abnormal bulging of a blood vessel in the brain, which can burst and cause death)
	  ○ Tumour
	  ○ Trauma to the brain
	  ○ Vascular disease (diabetes, hypertension).

SYMPTOMS	• Sudden double vision • Inability to move the eye normally • Drooping eyelid, inability to open the eye in the normal way • May have pain around the eyes • Headache.
SIGNS	• Eye turn (down and out) • Person will not be able to look upwards or nasally • Upper eyelid is droopy (ptosis) • The pupil of the affected eye may be normal or dilated (mydriasis) • The direct and consensual pupil response may be sluggish or absent • Eyeball may appear to be pushed forward (proptosis).

REFERRAL CRITERIA	• Refer immediately any person who complains of a SUDDEN onset of:
	  ○ ptosis
	  ○ dilated pupil
	  ○ eye turn (down and out)
	• The person needs to be sent to the hospital immediately – as they could have an aneurysm, tumour or bleeding in the brain
	• Conditions which cause third nerve palsy can be very serious and life threatening!

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ANEURYSM and THIRD NERVE PALSY:

- **If a person presents with sudden, unilateral double vision with pupillary involvement – consider this to be aneurysm that is about to burst**
- **If an aneurysm in the brain increases in size, it can break and haemorrhage – which will cause sudden death**
- **A third nerve palsy might be the first and only sign that a person has an aneurysm**
- **This situation is a medical emergency and should be referred IMMEDIATELY!.**

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SUDDEN DOUBLE VISION

- Double vision (diplopia) is when a person sees two complete images of a single object
- The image can be superior, inferior or horizontal to the original image
- Normally, the two eyes work together to form a single image
- If the eyes do not point at the same object, the image seen by each eye is different and cannot be fused by the brain into one single image → this results in double vision
- Double vision (also called diplopia) can be monocular or binocular in presentation
- Monocular diplopia is commonly caused by an abnormality in the eye, such as:
  - Uncorrected refractive error
  - Cataract
  - Dislocation of the crystalline lens
  - Retinal disease
- Binocular diplopia is often caused by a breakdown in the binocularity of the eyes:
  - Cranial nerve palsies (e.g. trauma)
  - Extra-ocular muscle weakness or palsy.

WHAT CAUSES DOUBLE VISION?	• Damage to one or more of the extra-ocular muscles that control eye movement • Can be caused by: ○ Tumour ○ Aneurysm ○ Systemic disease (e.g. thyroid problems, stroke) ○ Trauma to the brain.
SYMPTOMS	• Sudden double vision • Headache.
SIGNS	• Depending on the cause of the double vision • Could see an eye turn.
REFERRAL CRITERIA	• Refer immediately any person with a sudden onset of double vision • It can be a warning sign that the person had a stroke or has a tumour pressing on a nerve.

CORRECTLY DIAGNOSING SUDDEN ONSET OF DOUBLE VISION:

- **Some causes of double vision can be life- threatening (e.g. tumour) while others are not that serious (e.g. eye turn due to muscle damage)**
- **It is very important to correctly identify whether the double vision is due to life- threatening cause or not**
- **The most important question you should ask any person who complains of double vision is: "*When did it start?*"**
- **If the person has had double vision for a long period of time it is probably not serious**
- **If the person tells you it just happened recently, this could be an indication of a serious problem causing the double vision**
- **If the onset of the double vision is recent and sudden, you need to send the person to the hospital IMMEDIATELY!**

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TRANSIENT ISCHEMIC ATTACK (TIA) AND STROKE

WHAT IS IT AND WHAT ARE THE SYMPTOMS?	• A stroke occurs when the supply of blood to the brain is suddenly disrupted or disturbed • Blood may stop moving through the artery because of a blockage or break in the artery • A reduction in or lack of oxygen to the brain will cause damage to the brain cells • A stroke is a medical emergency because it can cause permanent brain damage and even death • A transient ischemic attack (TIA) is a 'mini stroke' or a warning of a possible stroke • A TIA typically lasts no more than a few minutes, while a stroke lasts longer and results in more serious brain damage • TIA is an important warning sign that a stroke might occur in the future.

WHAT CAUSES IT?	• A stroke can be caused by any disturbance in the blood supply to the brain, such as:
	  ○ Blockage in an artery
	  ○ Leakage of blood from blood vessels in the brain.
	• A TIA is most often caused by a temporary blockage in an artery in the brain.

RISK FACTORS	• Risk factors for stroke include:
	  ○ Advanced age
	  ○ Hypertension (high blood pressure)
	  ○ Diabetes
	  ○ Family history of a stroke
	  ○ Smoking
	  ○ Previous stroke or TIA.

SYMPTOMS/ SIGNS	• Symptoms of TIA and stroke may vary in severity and from person to person
	• TIA symptoms also depend on which area of the brain is affected
	• Most TIA symptoms usually last only a few seconds or minutes, and have usually disappeared in less than an hour
	• The most common TIA symptoms include:
	  ○ Difficulty speaking (aphasia) or understanding
	  ○ Temporary loss of vision (amaurosis fugax)
	  ○ Weakness on one side of the body (hemiparesis)
	  ○ Numbness and tingling (paresthesia) – often on only one side of the body
	  ○ Dizziness
	  ○ Poor balance and lack of coordination
	• The symptoms of a stroke usually appear very suddenly
	• Stroke symptoms vary depending on the area(s) of the brain involved, but could include:
	  ○ The person feeling sick and unwell, and looking very pale
	  ○ A sudden headache
	  ○ Sudden numbness in their face, arms or legs – usually on one side of the body only
	  ○ Confusion
	  ○ Difficulty speaking (aphasia) or understanding what is being said
	  ○ Problems with vision
	  ○ Difficulty walking or moving parts of the body

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	○ Problems with balance and coordination ○ Difficulty swallowing ○ Occasionally a loss of consciousness ○ Memory loss.
REFERRAL CRITERIA	• Refer the person to the hospital ***IMMEDIATELY***, even if the symptoms go away after a few minutes • This could be a warning sign before the stroke, or could even be the results of a life-threatening stroke.

TIA or STROKE?

- **The short duration of symptoms and lack of permanent brain injury is the main difference between TIA and stroke**
- **TIAs and strokes are both medical emergencies and need to be referred or taken to the hospital immediately**
- **A TIA is a warning that a stroke may occur in the future**
- **Early identification of symptoms and treatment by a medical practitioner can greatly reduce the chances of a major stroke.**

REMEMBER:

If you are uncertain about any diagnosis or condition you see, you should *ALWAYS* refer the person to a medical practitioner.

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CONDITIONS THAT NEED TO BE REFERRED URGENTLY

If a person presents with any of the signs and symptoms listed below, you must refer the person immediately and get them medical attention urgently.

These signs and symptoms y may indicate a condition that could result in either blindness or death in a short period of time.

Fortunately, most of these conditions are very rare, and you may never come across them. However you must know about them to ensure you can act appropriately if needed.

Signs and Symptoms:	Possible cause(s):
Sudden double vision	Brain tumour, stroke, aneurysm
Sudden loss of vision in either one of both eyes.	Stroke, central retinal artery occlusion (which can cause blindness within 90 minutes)
Extreme pain in eye, nausea, vomiting and haloes around lights	Closed angle glaucoma
Transient loss of vision in either one or both eyes (vision in the eye comes and goes)	Stroke, aneurysm
Sudden visual field loss	Brain tumour
Sudden pupil changes	Brain tumour, aneurysm
Recent motility problem	Aneurysm, brain tumour, stroke
Vertical confrontation field loss	Brain tumour
A swollen eyelid with pain on eye movements	Orbital cellulitis
A very pale fundus with a cherry red spot at the macula	Central retinal artery occlusion
Intraocular pressures over 35mm Hg	Acute angle closure glaucoma

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SUMMARY – MEDICAL EMERGENCIES

THIRD NERVE PALSY

- Presents with:
  - Sudden onset unilateral ptosis
  - Dilated pupil
  - Eye which is turned down and out
- If anybody presents with these signs, assume they might have an aneurysm that is about to burst
- This is a medical emergency and the person needs to be sent or taken to the hospital immediately
- Common in the elderly and people who suffer from diabetes and/or hypertension.

SUDDEN DOUBLE VISION

- Double vision (diplopia) can be monocular or binocular in presentation
- There is damage to one or many of the extraocular muscles that control eye movement
- Can be caused by:
  - Tumour
  - Aneurysm
  - Systemic disease (e.g. thyroid problems, stroke)
- The sudden onset of double vision can be a warning sign that the person has a tumour or had a stroke
- This is a medical emergency and the person needs to be sent to the hospital immediately

TRANSIENT ISCHEMIC ATTACK AND STROKE

- A stroke occurs when the supply of blood to the brain is suddenly disrupted
- Transient ischemic attack (TIA) is a warning that a future stroke may be imminent
- The symptoms can include:
  - Temporary loss of vision
  - Difficulty speaking or understanding
  - Weakness on one side of the body
  - Numbness or tingling to one side of the body
- A TIA and a stroke are both a medical emergency and needs to be sent to the hospital immediately
- Early identification of symptoms and treatment by a medical practitioner greatly reduces the chances of a major stroke.

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TEST YOURSELF QUESTIONS

1. **Name three common signs of a third nerve palsy:**
   a. _____
   b. _____
   c. _____

2. **Why is it so important to send a person with a third nerve palsy to the hospital immediately?**
   _____
   _____
   _____

3. **What can cause a sudden onset double vision?**
   _____
   _____
   _____

4. **What are the possible symptoms of a stroke?**
   _____
   _____
   _____
   _____
   _____

5. **What is the difference between a TIA and a stroke?**
   _____
   _____
   _____

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