DOWNLOAD PDF EXAMINATION OF OCULAR MOTILITY AND ALIGNMENT

Chapter 1 : The 8-Point Eye Exam - American Academy of Ophthalmology

The examination of the ocular motor system generally consists of the assessment of (1) fixation and gaze-holding ability, (2) range of monocular and binocular eye movements, (3) ocular alignment, and (4) performance of versions (saccades, pursuit).

A swinging-flashlight test may also be desirable if neurologic damage is suspected. The swinging-flashlight test is the most useful clinical test available to a general physician for the assessment of optic nerve anomalies. This test detects the afferent pupil defect , also referred to as the Marcus Gunn pupil. It is conducted in a semidarkened room. In a normal reaction to the swinging-flashlight test, both pupils constrict when one is exposed to light. As the light is being moved from one eye to another, both eyes begin to dilate, but constrict again when light has reached the other eye. If there is an efferent defect in the left eye, the left pupil will remain dilated regardless of where the light is shining, while the right pupil will respond normally. If there is an afferent defect in the left eye, both pupils will dilate when the light is shining on the left eye, but both will constrict when it is shining on the right eye. This is because the left eye will not respond to external stimulus afferent pathway , but can still receive neural signals from the brain efferent pathway to constrict. If there is a unilateral small pupil with normal reactivity to light, it is unlikely that a neuropathy is present. If there is a small, irregular pupil that constricts poorly to light, but normally to accommodation , this is an Argyll Robertson pupil. Extraocular muscles Ocular motility should always be tested, especially when patients complain of double vision or physicians suspect neurologic disease. First, the doctor should visually assess the eyes for deviations that could result from strabismus , extraocular muscle dysfunction, or palsy of the cranial nerves innervating the extraocular muscles. Saccades are assessed by having the patient move his or her eye quickly to a target at the far right, left, top and bottom. This tests for saccadic dysfunction whereupon poor ability of the eyes to "jump" from one place to another may impinge on reading ability and other skills, whereby the eyes are required to fixate and follow a desired object. The patient is asked to follow a target with both eyes as it is moved in each of the nine cardinal directions of gaze. The examiner notes the speed, smoothness, range and symmetry of movements and observes for unsteadiness of fixation. These nine fields of gaze test the extraocular muscles: Visual field confrontation testing[edit] Main articles: Visual field and Visual field test Testing the visual fields consists of confrontation field testing in which each eye is tested separately to assess the extent of the peripheral field. The patient is then asked to count the number of fingers that are briefly flashed in each of the four quadrants. This method is preferred to the wiggly finger test that was historically used because it represents a rapid and efficient way of answering the same question: Common problems of the visual field include scotoma area of reduced vision , hemianopia half of visual field lost , homonymous hemianopsia and bitemporal hemianopia. External examination[edit] External examination of eyes consists of inspection of the eyelids , surrounding tissues and palpebral fissure. Palpation of the orbital rim may also be desirable, depending on the presenting signs and symptoms. The conjunctiva and sclera can be inspected by having the individual look up, and shining a light while retracting the upper or lower eyelid. The position of the eyelids are checked for abnormalities such as ptosis which is an asymmetry between eyelid positions. Slit-lamp[edit] Slit lamp examination of the eyes in an ophthalmology clinic Close inspection of the anterior eye structures and ocular adnexa are often done with a slit lamp which is a table mounted microscope with a special adjustable illumination source attached. A small beam of light that can be varied in width, height, incident angle, orientation and colour, is passed over the eye. Often, this light beam is narrowed into a vertical "slit", during slit-lamp examination. The examiner views the illuminated ocular structures, through an optical system that magnifies the image of the eye and the patient is seated while being examined, and the head stabilized by an adjustable chin rest. This allows inspection of all the ocular media, from cornea to vitreous, plus magnified view of eyelids, and other external ocular related structures. Fluorescein staining before slit lamp examination may reveal corneal abrasions or herpes simplex infection. The binocular slit-lamp examination provides stereoscopic magnified view of the eye structures in striking detail, enabling exact anatomical diagnoses to be made for a variety of eye conditions. Also ophthalmoscopy and gonioscopy

examinations can also be performed through the slit lamp when combined with special lenses. The eye can be thought of as an enclosed compartment through which there is a constant circulation of fluid that maintains its shape and internal pressure. Tonometry is a method of measuring this pressure using various instruments. The normal range is mmHg. Retinal examination[edit] Fully dilated pupil prior to ophthalmoscopic examination Examination of retina fundus examination is an important part of the general eye examination. Dilating the pupil using special eye drops greatly enhances the view and permits an extensive examination of peripheral retina. A limited view can be obtained through an undilated pupil, in which case best results are obtained with the room darkened and the patient looking towards the far corner. The appearance of the optic disc and retinal vasculature are also recorded during fundus examination. An opacity may indicate a cataract. Using a phoropter to determine a prescription for eyeglasses Eye exams for children[edit] See also: If a parent suspects something is wrong an ophthalmologist can check even earlier. Early eye exams are important because children need the following basic visual skills for learning:

DOWNLOAD PDF EXAMINATION OF OCULAR MOTILITY AND ALIGNMENT

Chapter 2 : Eye examination as per medicare â€“ The SOAPnote Project

PRINCIPLES AND TECHNIQUES OF THE EXAMINATION OF OCULAR MOTILITY AND ALIGNMENT EXAMINATION
The examination of the ocular motor system generally consists of the assessment of (a) fixation and gaze-holding.

This article has been cited by other articles in PMC. To evaluate the profile of strabismus and amblyopia in patients presenting to a tertiary care institution in order to understand the disease burden. A retrospective, prospective hospital-based observational study was conducted at a tertiary level eye care hospital in India. All patients with strabismus or amblyopia who presented over a 1-year period were identified and referred to the squint clinic, where they were evaluated with a detailed clinical history and examination. A total of patients were evaluated, of which had strabismus or amblyopia. The overall magnitude of amblyopia and strabismus was 2. Among younger children, the burden of amblyopia and strabismus was Among the referred patients, strabismus was noted in Strabismus and amblyopia affect a sizeable proportion of patients presenting to a tertiary care ophthalmology setup. A significantly higher burden is present in the pediatric population. The majority of the cases of strabismus are of a comitant variety, which do not merit tertiary level eye care. There is a need to improve pediatric eye care at a secondary level to reduce the immense burden on tertiary referral centers. Amblyopia, esotropia, exotropia, ophthalmology, pediatric, strabismus Introduction Strabismus squint and amblyopia are not infrequent causes of ocular morbidity in India. Both typically affect children in the early years and subsequently result in vision loss and impaired binocular function. While the literature abounds in studies discussing the prevalence of amblyopia and strabismus, both globally and in India, there are few hospital-based studies that provide the complete clinicodemographic profile of amblyopia and strabismus, including their subtypes. The current study evaluates all patients who visited a tertiary care center, in an attempt to better define the clinical and demographic pattern of strabismus across all ages in the Indian scenario while aiming to highlight the immense load of this condition on a tertiary level eye care center. All patients presenting to the ophthalmic outpatient department over a 1-year period February 1, to January, 31 underwent a screening examination for ocular motility or related disorders. The protocol for examination for all patients who were evaluated at the general outpatient clinic included a visual acuity assessment, cover test, ocular motility examination, slit lamp examination, and fundus examination. If on initial examination there was a suspicion of amblyopia or strabismus, the patients were referred to the squint and amblyopia clinic. At the clinic, the patients underwent a detailed evaluation by an expert ophthalmologist. The clinic workup included recording a detailed clinical history including age of onset, duration of symptoms, progression of symptoms, and previous treatment taken, along with a comprehensive eye examination. The examination included monocular distance visual acuity, evaluation of ocular motility and alignment, anterior segment examination, and fundus evaluation. Age-appropriate cycloplegic refraction was done to assess the refractive status of the eyes. Strabismus or squint was defined as the presence of misalignment between the visual axis of the eyes as evidenced by a cover test presenting with deviation of the eyes. Strabismus was further subdivided into comitant if the amount of misalignment between the eyes due to squint remained equal in all directions of gaze and incomitant if the amount of misalignment between the eyes due to squint varied in different directions of gaze. If the squinting eye was deviated inward, it was termed as a convergent squint or esotropia and if the squinting eye was deviated outward, it was termed as a divergent squint or exotropia. Nystagmus was defined as the presence of involuntary wriggly or dancing eye movements. Amblyopia was defined as reduced vision in either or both eyes in the absence of an organic cause. Amblyopia was classified as anisometropic if there was a significant difference between the refractive error of the two eyes, or strabismic if the amblyopia was caused due to squint. Any predisposing factor such as anisometropia or strabismus was noted. Strabismus was further classified as manifest or latent squint. Manifest strabismus was further divided into comitant labeled as esotropia or exotropia and incomitant labeled as paralytic or restrictive squint. Manifest horizontal strabismus was also classified as intermittent and constant. The presence of nystagmus was noted, as was its association with squint or amblyopia. Statistical analysis was done using Stata The proportion was estimated by dividing the number of individuals with any type of strabismus or any form of

amblyopia by the total number of individuals recruited. Exact binomial confidence intervals CIs were calculated for the proportion estimates. Descriptive statistics were used to depict the subclassification of strabismus and amblyopia. Results A total of patients visited the eye hospital during the year for recruitment in the study and were considered the study population. Of these, patients were diagnosed to have either squint or amblyopia and were referred to the squint and amblyopia clinic [Table 1]. Mean age of these patients was Around one in four children from the total population suffered from either strabismus or amblyopia and were referred to the squint clinic as against 4. Among the adults, the male-to-female ratio in the main population was 2: Ocular motility-related morbidity was noted in 4. Table 1 Open in a separate window Overall, the magnitude of strabismus was found to be 6. Of the total number of referred cases, Of the comitant squints, cases had a significant difference between up gaze and down gaze measurements and were classified separately as pattern strabismus. For the remaining , there was an equal distribution of exotropia and esotropia. Among all squints, paralytic squints constituted Of the patients unaccounted for in the strabismus or amblyopia groups, 5. Strabismic amblyopia was the most common type of amblyopia noted in the study and was nearly equally distributed among esotropia and exotropia. Of the children aged 6 years and below who visited the eye hospital, Nystagmus was noted in The table describes in detail the magnitude of strabismus and amblyopia and includes subgroup analysis. Discussion The study examined the clinical and demographic profile of patients visiting the outpatient department and squint clinic of a tertiary level eye care institution in India. This value is similar to the general prevalence rates of amblyopia described in the literature, which vary 0. There are no similar hospital-based studies; therefore a comparison has been made with population-based studies while recognizing the potential Berkesonian bias. The most common type of amblyopia in the current study was strabismic, which has been documented in the literature previously, including in one previous hospital-based study by the authors. The difference in the type of amblyopia observed in population-based studies and hospital-based studies may be explained by the fact that a large number of anisometropic amblyopes in the population may not be seeking consultation at a tertiary level hospital, either due to unawareness of their amblyopia or because they are undergoing management at a secondary level institution. In contrast, amblyopia associated with strabismus is probably more evident and causes the patient to visit a tertiary level hospital. Amblyopia can be easily managed at primary or secondary level clinics and does not routinely require a tertiary level referral. Therefore, developing decentralized pediatric and ophthalmic health care would go a long way in managing diseases such as amblyopia, which have a simple treatment process. While there are no previous hospital-based studies that may be compared, population-based surveys among children demonstrate a wide range of prevalence of strabismus varying from 0. Further, the fact that the large majority of squints seen in the study were comitant squints with a predominant horizontal misalignment, which can easily be managed by a nonspecialist ophthalmologist, only reiterates the need for better infrastructure and skill training at the secondary health care institutions. The need for developing more pediatric ophthalmology setups and training ophthalmologists for handling such cases in developing countries including India is further emphasized by the fact that children account for over half The clinical profile of strabismus demonstrated an equal distribution of esotropia and exotropia. Hospital-based literature from around the globe differs from this in showing a higher proportion of esotropia than exotropia. The majority of the population-based studies in the literature that were conducted among the general population, specifically in the pediatric age group, have demonstrated a higher proportion of esotropia in comparison to exotropia. The probable explanation is that the older age group has more risk factors for paralytic squints and restrictive strabismus, including diabetes, hypertension, and thyroid disease, while children have a higher prevalence of refractive and accommodative squints. While the trend is understandable, it has not been categorically documented previously in the literature. The exact magnitude of nystagmus is still unknown due to paucity of studies. Previous hospital-based data have found a magnitude of 0. A limitation that merits mention is that a significant portion of the study was retrospective and the occasional incomplete or missing records could potentially add errors to the magnitudes reported. The study has revealed a definite heavy burden of ocular motility morbidity at a tertiary care center. There is a significant financial and socioeconomic burden on society for developing and managing tertiary health care infrastructures, and on individuals for obtaining

treatment at such institutions. This has been highlighted in various reports and holds true with regard to the ocular motility disorder burden, too. Financial support and sponsorship.

Chapter 3 : Eye examination - Wikipedia

Extraocular motility and alignment Have the patient look in the six cardinal positions of gaze. Test with both eyes open to assess versions â€" repeat monocularly to test ductions.

Extraocular motility and alignment Have the patient look in the six cardinal positions of gaze. Test with both eyes open to assess versions â€" repeat monocularly to test ductions. Figure 1 below shows which muscle is tested in each position. Use the alternate cover test to assess for the total amount of deviation. This amount minus any heterotropia is the amount of heterophoria. Intraocular pressure Goldmann applanation tonometry is the gold standard and should be used in the clinic whenever possible. Outside of the clinic, Tono-Pen tonometry is much more practical. If you suspect a ruptured globe, skip this part of the exam. Confrontation visual fields Assess each quadrant monocularly by having the patient count the number of fingers that you hold up. If acuity is particularly poor, have the patient note the presence of a light. Use the colored lid of an eyedrop bottle to define the position of a scotoma more accurately. External examination Look for any ptosis by measuring the margin-to-reflex distance, which is the distance from the corneal light reflex to the margin of the upper lid. Note any unusual growths or lesions that may require a biopsy. Palpate lymph nodes and the temporal artery if indicated by the history or exam. Measure proptosis or enophthalmos with an exophthalmometer. Perform a full cranial nerve exam for patients with diplopia or other neurologic symptoms. Normal anatomy and contours? Nuclear, cortical or subcapsular cataract? Fundoscopic examination Optic nerve: Cup-to-disc ratio see Figure 2 below? Drusen, edema or exudates? He will be staying to complete a glaucoma and complex anterior segment surgery fellowship during the â€" academic year.

Chapter 4 : Ocular Motility : Screening Exams : The Eyes Have It

ocular alignment and motility examination. Related: ocular alignment, motility examinations. Refractive Mgmt/Intervention View Full Image.

Patients with ocular motor disorders may complain of a number of visual difficulties, including diplopia, visual confusion, blurred vision, and the vestibular symptoms of vertigo, oscillopsia, or tilt. Diplopia Because misalignment of the visual axes causes the image of an object of interest to fall on noncorresponding parts of the two retinas, usually the fovea of one eye and extrafoveal retina of the other eye, a sensory phenomenon occurs that is usually interpreted as diplopia, the visualization of an object in two different spatial locations. Diplopia may be horizontal, vertical, torsional, or a combination of these. Diplopia that results from ocular misalignment disappears with either eye closedâ€”it is a binocular phenomenon. Binocular diplopia is almost never caused by intraocular disease, although it may occur in rare patients in the setting of a monocular macular lesion, such as a subretinal neovascular membrane or epiretinal membrane formation. The pathophysiology of binocular diplopia with uniocular disease may represent the establishment of rivalry between central and peripheral fusion mechanisms, as seen in the dragged fovea diplopia syndrome. Diplopia that persists with one eye closed, monocular diplopia, is rarely caused by neurologic disease. In almost all cases, it is produced by local ocular phenomena, including uncorrected astigmatism or other refractive errors, corneal and iris abnormalities, cataract, and macular disease. A pinhole will typically eliminate this form of diplopia, making it a useful test in patients suspected of monocular diplopia due to anterior segment or refractive abnormalities. Cases of monocular diplopia and polyopia are occasionally reported in patients with central nervous system CNS disease. In addition, the monocular diplopia in these patients is always seen with either eye covered. Such patients usually have lesions in the parieto-occipital region and associated visual field defects. The mechanism of cerebral diplopiaâ€”polyopia is unknown. For patients with true binocular diplopia, the eyes are presumably misaligned, and the examiner should ascertain if the diplopia is horizontal, vertical, or oblique; better or worse in any particular direction of gaze; intermittent or constant; different when viewing at distance or near; or affected by head posture. Visual Confusion In patients with misalignment of the visual axes, the maculae of the two eyes are simultaneously viewing two different objects or areas, interpreted as existing at the same point in space. This sensory phenomenon is called visual confusion. Patients with visual confusion complain that the images of objects of interest are superimposed on inappropriate backgrounds. Blurred Vision Misalignment of the visual axes does not always produce diplopia or visual confusion. In some patients, the images of an object seen by noncorresponding parts of the retina are so close together that the patient does not recognize two distinctly separated images but instead complains that the vision is blurred when both eyes are open. In such patients, the blurred vision clears completely if either eye is closed. Blurred vision that resolves with one but not either eye closed usually suggests a primary visual sensory disturbance. Blurred vision that does not resolve with either eye closed also usually occurs from visual sensory disease but may also occur in some patients with oscillopsia, disorders of saccades e. Vertigo, Oscillopsia, and Tilt Patients with disorders that affect the vestibular system may complain of disequilibrium or unsteadiness, symptoms that reflect imbalance of vestibular tone. A common complaint of patients with vestibular imbalance disease of vestibular organ, nerve, or brainstem nuclei is vertigo, the illusory sensation of motion of self or of the environment. It is best to evaluate the vestibular sense alone by asking the patient about the perceived direction of self-rotation with the eyes closed, thus eliminating conflicting visual stimuli. Oscillopsia is an illusory to-and-fro movement of the environment that may be horizontal, vertical, torsional, or a combination of these directions, caused by an instability of fixation, typically of neurologic origin. When oscillopsia is produced or accentuated by head movement it is usually due to vestibular imbalance. Oscillopsia is rarely present when ocular motor dysfunction is congenital e. A third group of vestibular symptoms include the perception of tilt: These complaints usually reflect a disturbance of the otolith organs from either peripheral or central causes. When dealing with such patients, as with patients who complain of vertigo, the examiner should ask about the perception of the position of the body relative to the earth vertical, with the

eyes closed to eliminate conflicting visual stimuli. Examination The examination of the ocular motor system generally consists of the assessment of 1 fixation and gaze-holding ability, 2 range of monocular and binocular eye movements, 3 ocular alignment, and 4 performance of versions saccades, pursuit. In addition, depending on the findings of the basic examination, it may be appropriate to test the vestibulo-ocular and optokinetic reflexes to differentiate between supranuclear and nuclear or infranuclear disorders. Fixation and Gaze-Holding Ability Principles In a normal, awake person, the eyes are never absolutely still. Fixation is interrupted by three distinctive types of miniature eye movements including microsaccades, continuous microdrift, and microtremor. Square-wave jerksâ€”spontaneous, horizontal saccades of about 0. With total ophthalmoplegia, there is usually a slight divergence of the visual axes, and this position usually also occurs during sleep, deep anesthesia, and death. Technique In patients complaining of intermittent diplopia, visual confusion, or strabismus, tests of sensory fusion e. Range of Eye Movements Principles To discuss eye movements, it is necessary to have a frame of reference against which any movement may be quantified. Accordingly, the primary position of the eyes is arbitrarily designated as that position from which all other ocular movements are initiated or measured. All movements of the globe around the hypothetical center of rotation can be analyzed in terms of a coordinate system with three axes perpendicular to each other and intersecting at the center of rotation Fig. The Y axis is equivalent to the visual axis; the Z axis is vertical around which the eye rotates horizontally ; and the X axis is horizontal around which the eye rotates vertically. Rotations of either eye alone without attention to the movements of the other eye are called ductions. Horizontal rotation is termed adduction if the anterior pole of the eye is rotated nasally and abduction if the anterior pole of the eye is rotated temporally. Vertical rotation is called elevation if the anterior pole of the eye rotates upward and depression if it rotates downward. Rotation around either the horizontal or vertical axis places the eye in a secondary position of gaze. In achieving this position, there is no rotation of the globe around the Y axis i. The oblique positions of gaze are called tertiary positions. They are achieved by a simultaneous rotation around the horizontal and vertical axes. When an eye moves obliquely out of primary position, the vertical axis of the globe tilts with respect to the X and Z axes. The Y axis corresponds to the line of sight when the eye is in the primary position, looking straight ahead. True ocular torsion is defined by the direction of the rotation around the Y axis i. If the same area rotates away from the nose, the movement is called extorsion excycloduction; excyclotorsion. Torsion occurs mainly as part of the involuntary compensatory eye movements that take place during head tilt. In this setting, the torsion movements are called countertorsion or counter rolling. Dynamic countertorsion occurs during head tilt and reflects the semicircular canal-induced torsional vestibulo-ocular reflex VOR. Static countertorsion persists at a given angle of any head tilt, but the amount of rotation is minor compared with that which occurs from dynamic countertorsion. Static countertorsion reflects a tonic otolithâ€”ocular reflex. Each utricle influences both eyes in both directions but primarily controls tilt to the contralateral side. The actions of the extraocular muscles are typically discussed in terms of individual antagonist pairs and have primary, and potentially secondary, and tertiary actions see Table Normal eye movements are binocular. Such movements are called versions if the movements of the two eyes are in the same direction and vergence movements if they are in opposite directions i. For practical purposes, the extraocular muscles of each eye work in pairs during both versions and vergence movements, with one muscle of each eye contracting the agonist while its opposing muscle relaxes the antagonist. The three agonistâ€”antagonist muscle pairs for each eye are the medial and lateral rectus muscles, the superior and inferior rectus muscles, and the superior and inferior oblique muscles. Whenever an agonist muscle receives a neural impulse to contract, an equivalent inhibitory impulse is sent to the motor neurons supplying the antagonist muscle so that it will relax. This is called Sherrington law of reciprocal innervation. For the eyes to move together to produce a horizontal version, the lateral rectus of one eye and the medial rectus of the opposite eye must contract together. These muscles constitute a yoke pair. The other two yoke pairs are the superior rectus muscle of one eye and the inferior oblique muscle of the other eye, and the superior oblique muscle of one eye and the inferior rectus muscle of the other eye. Implicit in the concept of a yoke pair is that such muscles receive equal innervation so that the eyes move together, which forms the basis of Hering law of motor correspondence.

DOWNLOAD PDF EXAMINATION OF OCULAR MOTILITY AND ALIGNMENT

Chapter 5 : ocular alignment and motility examination - American Academy of Ophthalmology

Ocular Motor System; Ocular Motility; Ocular Alignment Description "In this chapter, we discuss normal and abnormal monocular and binocular eye movements as they pertain to the techniques used in the examina-tion of patients with disorders of ocular motility.".

URL of this page: A health care provider observes the movement of the eyes in six specific directions. How the Test is Performed You are asked to sit or stand with your head up and looking straight ahead. Your provider will hold a pen or other object about 16 inches or 40 centimeters cm in front of your face. The provider will then move the object in several directions and ask you to follow it with your eyes, without moving your head. You will look at a distant object and the person doing the test will cover the other eye, then after a few seconds, uncover it. You will be asked to keep looking at the distant object. How the eye moves after it is uncovered may show problems. Then the test is performed with the other eye. A similar test called an alternate cover test may also be done. You will look at the same distant object and the person doing the test will cover one eye, and after a couple of seconds, shift the cover to the other eye. Then after a couple more seconds, shift it back to the first eye, and so on for 3 to 4 cycles. You will keep looking at the same object no matter which eye is covered. How to Prepare for the Test No special preparation is necessary for this test. How the Test will Feel The test involves only normal movement of the eyes. Why the Test is Performed This test is performed to evaluate weakness or other problem in the extraocular muscles. These problems may result in double vision or rapid, uncontrolled eye movements. Normal Results Normal movement of the eyes in all directions. What Abnormal Results Mean Eye movement disorders may be due to abnormalities of the muscles themselves. They may also be due to problems in the sections of the brain that control these muscles. Your provider will talk to you about any abnormalities that may be found. Risks There are no risks associated with this test. Considerations You may have a small amount of uncontrolled eye movement nystagmus when looking to an extreme left or right position. Preferred Practice Patterns Committee. Preferred Practice Pattern Guidelines. Comprehensive adult medical eye evaluation - Accessed March 22, Goldman L, Schafer AI, eds. Eye movements and positions. Tasman W, Jaeger EA, eds. Approach to the patient with neurologic disease. Anatomy and physiology of the extraocular muscles and surrounding tissues. Yanoff M, Duker JS, eds.

Chapter 6 : How to Perform a Basic Cover Test in Ocular Misalignment or Strabismus

Principles and Techniques of the Examination of the Ocular Motility and Alignment. Supranuclear and Internuclear Ocular Motility Disorders.

If video fails to load, use this link. Video Transcript The following is a brief instructional video tutorial on the appropriate method to perform a cover test in the evaluation of a patient for ocular misalignment or strabismus. The patient should be seated and asked to fixate at distance on an accommodative target. The patient should be wearing their best correction for their refractive error. If the patient is adopting an alternate head position such as a chin up, chin down, face turn or head tilt, they should be placed into a forced primary or straight head position. The single cover test is a test is used to determine if there is a heterotropia or tropia, which is a manifest strabismus or misalignment that is always present. The first eye is covered for approximately seconds. As this eye is covered, the uncovered eye is observed for any shift in fixation. The occluder is then removed and any refixation movements are then noted under binocular conditions. If there is no shift in fixation it can mean two things: The patient is orthotropic or has no misalignment, but this needs to be confirmed by seeing the same thing when the opposite eye is covered; or The uncovered eye is the fixating or preferred eye in the setting of a heterotropia. Next, the opposite eye is covered in a similar fashion for approximately seconds making sure to wait a few seconds from the prior eye as not to suspend fusion and allow for a phoria to manifest. Any shift in fixation of the unoccluded eye is then noted. If the unoccluded eye shifts in, or medially, in a temporal to nasal fashion when the opposite eye is occluded â€" this means that there is an exotropia, such as in this case. If the unoccluded eye shifts out, or laterally, in a nasal to temporal fashion when the opposite eye is occluded â€" this means that there is an esotropia. If the unoccluded eye shifts down when the opposite eye is occluded â€" this means that there is a hypertropia. If the unoccluded eye shifts up when the opposite eye is occluded â€" this means that there is a hypotropia. If a tropia is present â€" the angle of deviation can be determined by performing a simultaneous prism cover test. This test is performed by placing a prism of varying strength prism that is oriented in the appropriate direction for the deviation over the non-fixating eye while simultaneously placing an occluder over the fixating or preferred eye until there is no shift in fixation or the deviation is neutralized. This test is typically only used to measure small angle tropias with the idea of not dissociating the patient and bringing out an underlying phoria. It is important that when performing a single cover test that occlusion of each eye is brief as not to suspend binocular fusion and dissociate the patient as this may make the deviation appear larger by superimposing a phoria on top. The next test is a cover uncover test. This is a that test is performed to determine if there is a heterophoria or phoria, which is a latent strabismus or misalignment that is only present when binocular fusion is suspended or interrupted. This test is performed in the same manner as the single cover test except that attention is turned to the eye that has been occluded as the occluder is pulled away. If the uncovered eye does not show a fixation shift as the occluder is placed, but as the occluder is pulled away, the covered eye shows a refixation movement once binocular conditions are restored â€" this represents a phoria. The next test is the alternate cover test. This test will allow the full deviation to be measured as it will bring out any phoria that is present in addition to the tropia determined on single cover testing by suspending binocular fusion. This test is performed after single cover testing as it is the most dissociative of cover tests. This test involves covering one eye and holding the occluder for several seconds to suspend fusion, then shifting the occluder to the other eye and rapidly alternating back and forth without allowing the patient to become binocular and being careful to always keep one eye occluded. The eye under the occluder is observed as the occluder is removed and placed over the fellow eye in order to determine the direction of deviation. If there is an outward, or lateral, refixation in the nasal to temporal direction â€" this represents an eso deviation. If there is an inward, or medial, refixation in a temporal to nasal fashion â€" this represents an exo deviation. If there is a vertical refixation movement â€" this represents either a hyper or hypo deviation. There can be both horizontal and vertical deviations present at the same time. The full angle of deviation can be determined by performing an alternate prism cover test. This test is performed by placing prism of varying strength that is oriented in the appropriate

direction for the deviation over the non-fixating eye while performing the alternate cover test until there is no longer a shift in fixation in either eye. This is when the deviation has been neutralized. For an eso deviation, a base out prism should be used. For an exo deviation, a base in prism should be used. For a hyper deviation, a base down prism should be used. For a hypo deviation, a base up prism should be used. Horizontal prism and vertical prisms can be stacked over the same eye, but two prisms that are oriented in the same direction cannot be used over the same eye. This test can be performed in all 9 cardinal gaze positions and head tilts if the clinical situation dictates. This same test can also be performed at near, by having the patient fixate on an accomodative near target. Again, making sure they are in their best correction for near. The Parks-Bielschowski 3-step test is a helpful test in determining the etiology of a vertical deviation with or without any horizontal deviation. This test is performed in a similar fashion as the alternate prism cover test. The deviation is first measured in primary gaze. The deviation is then measured with the face pointed straight ahead, but the head tilted to both the right and left. Kirkpatrick C, Klauer T. April 24, ; Available from:

Chapter 7 : Examination of Ocular Motility and Alignment* | Ento Key

This exam element is commonly noted as ocular motility, or extraocular muscles (EOM), in the chart note. A normal range of motion is often noted as "full" or "within normal limits." Documentation of alignment, usually in primary gaze, is often noted as orthophoria (ortho) in older children and adults.

Chapter 8 : Extraocular muscle function testing: MedlinePlus Medical Encyclopedia

strabismus developed in adulthood after previously normal eye alignment. In this case, the person is a good candidate because of fusion potential â€" the ability of both eyes to "lock on" to a target simultaneously, resulting in stereovision and a high degree of depth perception.

Chapter 9 : Cholesterol Granuloma

ocular motility department of ophthalmology fatima college of medicine 2. Introduction â€¢ Under normal conditions, the image of the object of regard falls simultaneously on the fovea of each eye, when the eyes are in perfect alignment.