

of its reputed deadly influence. The stories of its ravages are, however, not founded on fact.

Centipedes are less dangerous than either of the preceding varieties. The most venomous grow to a length of six inches. A number of poison-claws project from the body. As the insect crawls over the surface, these are inserted into the integument, and the virus introduced. Some writers deny the existence of any special poison in members of this class.

The constitutional symptoms following the bites of these insects are exhibited in the form of headache, vertigo, dimness of vision, and sometimes febrile excitement. The wound, in some cases, is not inflamed; in others, it becomes red and painful, and the inflammation spreads to other parts of the extremity injured, ending in diffuse suppuration.

Treatment.—When the wound is cleansed, it should be sponged thoroughly with a strong solution of ammonia, and afterward covered with cloths moistened with the same substance. Brandy may be given internally in conjunction with ammonia.

CHAPTER VII.

EXTRACTION OF FOREIGN BODIES.

Foreign Bodies in the Larynx, Trachea, Bronchial Tubes, Pharynx, Œsophagus, Eyes, Nose, Ears, Urethra, Bladder, and Rectum.—Tracheotomy.—Laryngotomy Laryngotomy.—Œsophagotomy.

FOREIGN BODIES IN THE AIR-PASSAGES.—Foreign bodies are usually lodged in that portion of the air-passages known as the larynx. This organ is situated in the median line of the neck, between the trachea and base of the tongue. The anterior margin of its superior opening is guarded by a cartilage called the *epiglottis*. During the act of deglutition, the epiglottis closes the aperture in the larynx, and prevents the entrance of food as it passes over on its way to the Œsophagus. It is raised during the respiratory movements for the free ingress and egress of air.

The trachea commences opposite the fifth cervical, and bifurcates about the third dorsal vertebra into the right and left bronchus. The right bronchus is shorter than the left. Its orifice lies directly under the tracheal canal, so that foreign bodies which pass below the trachea drop in and effect a lodgment. The endeavor to talk, laugh, or respire, with food or other substances in the mouth, is often followed by the entrance of some portion into the air-passages. In talking or laughing, the air is passing out of the lungs, and the epiglottis is raised. Heavy substances contained in the

mouth during these acts, readily roll backward, notwithstanding the outward current. Taking a sudden inspiration while eating is more dangerous, as the current of air passing downward is liable to sweep a portion of the food along with it. Vomiting, while in a state of intoxication, is apt to be attended with the entrance of half-digested particles of food into the larynx. It is not unusual for worms to find their way into the larynx during sleep, or for bronchial glands to become detached and carried upward, producing serious and even fatal results. The presence of a foreign body in the pharynx, or œsophagus, may induce spasm of the glottis, and lead to the erroneous supposition that it has found lodgment in the air-passage. The introduction of a probang will settle the difficulty.

Children are more often subjected to this accident than adults are. The habit of carrying in the mouth beads, marbles, or pennies, is very prevalent among them. As an instance of the dangerous results attending it, the following incident, which occurred in Bellevue Hospital, may be of interest:

While engaged in amputating the great-toe of a little girl, who was under the influence of chloroform, she suddenly ceased to breathe; the face assumed a purple hue, and death seemed imminent. Apprehending that the chloroform was the cause of the difficulty, I commenced artificial respiration. While I compressed the chest, my assistant introduced his finger into the mouth to clear the throat of mucus, and draw forward the tongue. In so doing he found a copper coin completely closing the superior aperture of the larynx. The removal was soon followed by a renewal of the respiratory movements, and disappearance of all the

alarming symptoms. The child had been playing with the penny, and had placed it in her mouth previous to my arrival in the ward, and, when insensibility was induced by the anæsthetic, it fell back into the larynx.

Foreign bodies may lodge in the upper part of the larynx—in the ventricle between the vocal cords, or in the trachea and bronchial tubes. The symptoms differ with the location of the material, and the length of time it has remained.

The size of the foreign body bears no special relation to the severity of the symptoms, unless, indeed, it is so large as to completely block up the canal. A light substance capable of being moved up and down with the respiratory movements occasions greater distress than one which is stationary. When the material lodges in the larynx, whether large or small, it produces a spasm of the laryngeal muscles which close the glottis, and thus prevents the passage of air. The patient struggles for breath, the lips and cheeks become livid and swollen, the eyes protrude from their sockets, convulsive movements of the limbs accompany the agonizing efforts to breathe, and the patient dies at once, or receives temporary relief from a relaxation of the spasms. The current of air which now enters, either passes the obstruction, or carries it farther down into the trachea. Once in this organ, the intense suffocative symptoms become less marked and continuous. There is more or less difficulty of respiration all the time, pain over the point where the foreign body is lodged, and a distressing cough. The countenance has an extremely anxious expression; the pulse is rapid. Severe dyspnoea occurs now only at intervals. Whenever the substance is forced up into the larynx, violent efforts at

expulsion again ensue, with the same paroxysm as characterized the first stage.

When the foreign body reaches one of the bronchi, the lung on the corresponding side gives but little respiratory murmur on auscultation, and over the opposite lung there are exaggerated respiration and increased resonance on percussion.

The presence of a foreign body in any part of the air-passages gives rise to symptoms like those mentioned above—they only differ in degree. After a day or two has elapsed we have more pain—the cough is increased, the pulse becomes accelerated, the countenance retains its anxious expression, the voice is husky, and general febrile action is developed. There are also the special signs of inflammation in the part occupied by the irritating material.

Death may occur instantaneously in the *first period*, from asphyxia or injury to the brain, from extravasation of blood following the violent efforts to respire. In the second period death is induced by bronchitis or laryngitis. If weeks and months elapse before its expulsion, abscesses may form, and the patient succumbs to exhaustion.

Treatment.—A violent blow on the back, if given immediately after the accident occurs, will assist the natural efforts of the patient in ejecting the foreign body. After it has passed the larynx, this procedure alone will be of little avail. If the first attempt fails, the body is to be inverted and held up by assistants, while the physician strikes with the open hand between the shoulders, at the same time moving the patient rapidly from side to side. If this method induces violent suffocative paroxysms, it must not be repeated. Should the urgent symptoms continue, which

they are liable to do, laryngotomy or tracheotomy must be performed without delay. The acute sensibility of the larynx hinders the irritating material from passing the glottis, which closes spasmodically every time it reaches that point, and, unless an opening is made lower down to give it exit, death may soon ensue. Some surgeons advise the administration of emetics, but such practice is worse than useless.

Tracheotomy is preferred above other operations by some practitioners, especially for children; but, if circumstances admit, laryngotomy should be first performed. It possesses many advantages worthy of attention:

1. The parts are more accessible at all periods of life.
2. It is performed with greater rapidity, and consequently is peculiarly applicable to cases requiring instant relief.
3. There is no danger of wounding important vessels, or delaying the operation by hæmorrhage.

Laryngotomy is performed through the membranous interval existing between the thyroid and curved cartilages. The region is superficial and readily exposed. The only vessel to be avoided is the crico-thyroid artery, which passes across the upper part of the space to anastomose with its fellow on the opposite side.

The patient should be placed in a chair or in the recumbent posture, with the head thrown back, and the larynx steadied by an assistant. An incision about an inch in length is made through the integument over the crico-thyroid space, fully exposing the membrane, which is then opened by a transverse cut near the cricoid cartilage. By keeping close to this cartilage, all danger of wounding the

artery is avoided. The aperture thus made in the larynx is now widened by a dilator or ordinary forceps, and the patient turned on his chest. If the opening be too small, the incision may be carried down through the cricoid cartilage and upper ring of the trachea.

The ejection of the foreign body often occurs as soon as the operation is completed, but, if this desirable result do not follow, and the substance be within reach, a long-curved forceps may be carefully introduced to remove the obstruction. When the passages are entirely cleared, the edges of the wound must be approximated and allowed to heal.

Tracheotomy requires greater care and skill in its performance than laryngotomy. The trachea, especially in children, is deeply seated, and covered by important plexuses of veins and close proximity to large arteries. The parts to be avoided in the operation are: 1. The anterior jugular veins. 2. The isthmus of the thyroid gland which lies on the second and third rings of the trachea; and 3. The inferior thyroid veins.

It is always safe to administer chloroform to a child before commencing the operation. It renders material assistance to the surgeon, by relieving spasm and keeping the patient from struggling. Should it be considered advisable to dispense with the anæsthetic, the child's body must be enveloped in a sheet, which will keep the limbs motionless. The head is thrown back in the former case, and the larynx held by an assistant. An incision is made through the integument directly in the median line, beginning a short distance below the cricoid cartilage, and continued down from one and a half to two inches. By keeping exactly in the median line the anterior jugular veins are

avoided. These vessels are pushed aside, and the incision carried through the fascia, which covers the sterno-hyoid and sterno-thyroid muscles. These muscles are separated, and the inferior thyroid plexus of veins is reached. The handle of the scalpel is now to be carefully used in getting them out of the way without laceration. A tenaculum is inserted into the trachea to draw it forward. The knife is introduced between the rings, and two or three of them divided from below upward. The cut-ends are held apart by ligature or widened by dilators, and the patient is placed in a supine posture, and, if the obstruction still remains and is within reach, it must be removed with the forceps.

When these operations are performed for other pathological conditions, as laryngeal inflammations, tumors of the larynx, œdema glottidis, croup, etc., a curved tube is introduced through the opening, and allowed to remain until the difficulty which called for the operation is removed.

When the operation is concluded and the tube inserted, the patient must be carefully watched for a day or two, and the tube kept clear of blood and mucus. The old form of trachea-tube necessitated the use of a feather in order to keep it clean; but the variety now employed has a second tube fitting closely inside the first, which can be removed and cleaned at pleasure without disturbing the patient.

FOREIGN BODIES IN THE PHARYNX AND ŒSOPHAGUS.—The pharynx is that part of the alimentary canal which extends from the base of the skull to the fifth cervical vertebra, where it becomes continuous with the œsophagus. It lies behind the nose, mouth, and larynx, in the order mentioned from above downward. Its widest part is opposite the hyoid bone, its narrowest portion is where it joins the

œsophagus. The food passes into it from the mouth, and is carried down into the œsophagus by contraction of the pharyngeal muscles.

The œsophagus commences opposite the cricoid cartilage, to which it is attached by muscular fibres, and terminates in the cardiac extremity of the stomach, on a level with the ninth dorsal vertebra. In the neck it lies behind the trachea. It measures nine inches in length, and is the narrowest portion of the alimentary canal; the most contracted parts are at its origin, and as it passes through the diaphragm to connect with the stomach.

Various foreign bodies have lodged in the œsophagus and pharynx—among the most frequent of which are bulky articles of diet, such as meat, potatoes, beans, apples, etc., and metallic substances, such as pennies, needles, pins, and nails, and even bones, false teeth, India-rubber, and pieces of glass have been found. The symptoms depend in some degree on the location and character of the foreign body. When of large size, it is apt to stop at the lower portion of the pharynx, and by its pressure on the larynx cause spasm of the glottis and consequent suffocative paroxysms. Should it pass below this point, the pressure on the trachea may still obstruct the entrance of air. After the foreign body fully enters the œsophagus, it generally reaches the lower constricted portion at the cardiac orifice before it again lodges. Small bodies, such as pins or needles, pierce the mucous membrane, and cause more pain and irritation than other varieties. If they stop at the lower anterior part of the pharynx, spasmodic closure of the glottis is induced, often to a greater extent than when bodies of a large size press on the same part. Irregular sharp substances in the pharynx

or upper end of the œsophagus cause nausea and vomiting.

In the average of cases there are pain at the point of lodgment or over the episternal notch, and difficulty of swallowing. The patient is often extremely nervous, and complains of general distress in the throat.

Treatment.—In all cases of simple obstruction of the pharynx or œsophagus, the first endeavor should be to ascertain the character of the material swallowed and its point of lodgment. The first point can be ascertained from the patient or friends; the second by an examination with the finger, elastic bougie, or probang, and by the seat of the pain. The latter symptom, however, is not reliable, for in many instances the pain remains after the foreign body has been swallowed or vomited. The patient's statements, therefore, cannot be implicitly relied on.

In examining the pharynx, an ordinary laryngoscope may be used with advantage. When the tongue is fully depressed, and the light thrown in, the patient should then take a deep inspiration, which will separate the pillars of the fauces, and allow inspection.

If the obstruction is in the pharynx or upper part of the œsophagus, it should be removed if possible. If below the level of the episternal notch, and not too large or sharp, it may be pushed down into the stomach. Particles of food may generally be treated in this manner when below the point named, or when it is difficult to extract them. The use of dilute mineral acids will soften a piece of bone so that it will go down (*Hall*).

Force must not be employed in removing needles, pins, or other sharp articles, for fear of piercing, or lacerating the