ment of uræmic convulsions is similar to that pursued in uræmic coma (*see* Coma).

Puerperal Convulsions.—Convulsive attacks are not unusual during the period of utero-gestation, particularly toward its termination. They may arise from hysteria, epilepsy, etc., but the vast majority are due to uræmic poisoning. The enlarged uterus presses upon the blood-vessels of the kidney, causing congestion of that organ, and subsequent retention of *urea* in the blood. For a variable period previous to the convulsive seizure, the woman may present all the ordinary signs of Bright's disease (*see* Uræmic Coma). The convulsion is similar in all its features to that previously described.

The seizure may cause the death of the child *in utero*. The placenta may be compressed, so as to prevent the fœtal blood from being aërated, or the child may be poisoned by the urea, and die in a convulsion.

Treatment.—Inhalations of chloroform are employed to stop the convulsion. Should the attacks continue, premature labor must be induced, and the uterus emptied of its contents. If the cervix is undilated, sponge-tents may be inserted. When these have enlarged the canal somewhat, Barnes's dilators are passed up, and distended with water to such an extent as to thoroughly dilate the cervix. A catheter introduced between the membranes and walls of the uterus is sometimes employed to hasten delivery. When the cervix has been sufficiently dilated, the child is delivered by version, or with forceps.

The subsequent treatment consists in eliminating the poison from the blood of the patient, and building up the health by tonics and good diet.

Epileptic Convulsions are more common than any other variety. They may arise at any period of life. The largest proportion of cases, however, occur between the ages of ten and twenty (*Reynolds*). But little is known as to the pathology of the disease. Among the numerous causes given are: 1. Cerebral anæmia arising from spasmodic contraction of the vessels which supply the brain, diminishing the quantity of blood going to that organ. 2. Irregular distribution of blood to the brain, giving an over-supply to one part of the organ, and too little to another, exalting the excitability in one portion, and diminishing it in the other. 3. Excessive sensibility and excitability of the medulla oblongata, with or without spasm of its vessels (*Hammond*). 4. Softening of the pituitary body. 5. Induration of brain-substance; and, 6. Thinning and dilatation of the cerebral blood-vessels, with resulting anæmia, and exalted excitability of the medulla.

Epilepsy is often connected with masturbation, venereal excesses, syphilis, cerebral tumors, fright, etc., etc.

How far venereal excesses and syphilis tend to develop the disease is uncertain, unless by increasing the general excitability of the nervous system, and by lowering the general health.

Cerebral tumors excite convulsions by direct irritation, but we cannot place them under the head of true epilepsy any more than those arising from cerebral extravasation, or uræmia.

Many authorities give two varieties of true epilepsy: a mild form (*le petit mal*), where there is sudden unconsciousness, and little or no spasm; and *le haut mal*, where the loss of consciousness is complete, and the convulsive move-

ments general. It is very evident that there are two forms of epilepsy, differing in severity, but we can hardly apply the term epilepsy to every slight loss of consciousness, or "absence," without convulsive movement. Many persons have moments of partial unconsciousness, who have never had muscular twitchings of any sort, and who are free from hereditary taint. These persons are anæmic, dyspeptic, or both, and the attacks partake more of the nature of syncope than any thing else. I am acquainted with a gentleman who is affected suddenly once or twice in the month with partial or complete unconsciousness. It always takes place immediately after a hearty dinner, and is without spasm of any kind. Occasionally it is connected with a little vertigo. Such cases should not be classed under the head of epilepsy.

A true epileptic attack is commonly preceded by a warning called the epileptic aura. Strictly speaking, this term does not apply to all varieties of altered sensation which give notice of the coming fit, but only to those which give the feeling of a wind or breeze blowing on the person. However, as it is in common use, it will be retained in this connection. This premonitory symptom assumes different forms. Sometimes it consists in a general feeling of weakness, or of unpleasant sensations in the epigastrium or head. It may be a sharp pain in one extremity or the other, which seems to extend upward until it reaches the head, when the paroxysm appears. These warnings are not present in all cases. At the commencement of the attack the patient usually utters a loud cry, and falls suddenly to the ground, completely unconscious. The countenance is pallid. All the muscles are fixed in a tonic spasm. The

pulse sometimes cannot be distinguished at the wrist, owing to the contraction of the muscles. Respiratory movements have ceased. The eyes are fixed, the pupils dilated. Some say that the pupils are contracted in the early part of the stage, but this is doubtful. This condition of tonic spasm lasts from ten seconds to half a minute, when the clonic spasms commence. The countenance is now engorged with blood and livid. The blood-vessels of the face and neck are distended enormously. Bloody foam collects around the mouth. The eyes roll from side to side. The pulse is full and labored. The clonic stage continues from thirty seconds to one minute. All the muscles then relax and the patient sinks into a deep sleep, which may last several hours. In these typical cases of epilepsy the patient is entirely without knowledge of the fit when consciousness is restored. Sometimes epileptic fits take place during the night and continue for some time, the person being utterly ignorant of them. He only knows that he wakens in the morning with sore limbs and wounded tongue. These night-fits are apt to be milder in form than those occurring during the waking hours.

The sequelæ of epilepsy are idiocy and insanity. Long-continued attacks are often followed by either one or the other of these affections. When they reach this point, very little can be done to remove the disease. A fatal termination is so extremely rare in epilepsy that we are not in possession of any peculiar or characteristic *post-mortem* changes. The points of difference between an epileptic convulsion and one arising from uræmic poisoning have already been given. Epilepsy is easily diagnosed from hysteria. In epilepsy there is complete unconsciousness, and the patient

falls, wherever she may be, sometimes into the fire or down the stairs. In hysteria the patient knows every thing that is going on, as can be ascertained by watching the eyes; and she will fall in a soft, comfortable place, where there is little danger of receiving injury. Hysterical spasms are not so violent, nor is the tongue bitten, as in epilepsy. The face is not livid, and usually there is a choking sensation as if a ball were rising in the throat.

These convulsions are sometimes feigned by a class of persons called *malingerers*. Such cases are recognized by the fact that respiration does not cease, nor is the tongue bitten. The malingerer never falls where he is likely to hurt himself, and threats to use hot irons or hot water will bring about a speedy recovery.

From apoplexy it is distinguished by the absence of irregularity of the pupil, of paralysis, and also by the fact that the subsequent coma is complete.

Cerebral Extravasation.—Convulsions from this cause are extremely rare.

The patient previous to the convulsion may be affected with muscular twitchings about the face or slight numbness in one of the extremities. He may complain of a "fulness" about the head, and severe pain. The fit comes on suddenly, at the time of the extravasation. Convulsions from cerebral extravasation resemble the convulsions already described, in all the main features and symptoms.

The pupils are usually irregular, one contracted and the other dilated, or they may be both dilated.* There is always paralysis, generally of one lateral half of the body;

* There is an exception to this in extravasation of blood into the pons Varolii. In that case, the pupils are markedly contracted.

but this is not clearly manifested until the subsidence of the convulsion. When the spasms have ceased, the patient exhibits all the signs of compression of the brain—such as deep coma, slow, full pulse, dilated pupils—and he cannot usually be roused from his stupor. In epilepsy the patient is easily aroused.

The absence of albumen and casts in the urine, and of œdema of the extremities, will be sufficient in most cases to exclude uræmic poisoning. The fact, however, of the occurrence of Bright's disease in connection with apoplectic extravasation must not be overlooked. Such cases are not unfrequent. The presence of paralysis will under such circumstances lead the practitioner to the real seat of the lesion.

Treatment.—If the patient is full-blooded and plethoric, and the pulse full and hard, the abstraction of nine or ten ounces of blood from the arm will be decidedly beneficial. Even if it does not relieve in a marked degree the severity of the convulsive attacks, it will lessen the intra-cranial congestion, and thereby the danger of further extravasation.

When the patient is not plethoric, and when other diseased conditions tend to decrease the vital force, bloodletting should be avoided. The treatment in such cases is limited to the prevention of inflammation, absorption of the clot, and restoration of power to the paralyzed parts (*see* article on Coma).

RUM CONVULSIONS.—RUM EPILEPSY.

Persons who indulge freely in alcoholic stimulants not unfrequently suffer from spasmodic attacks resembling those of true epilepsy. The affection arises probably from

irritation produced in the nerve-centres by the alcohol, and also from congestion of the same parts. Much difficulty is encountered during the attack in distinguishing its true character. It will be found, however, that the tongue is not bitten, nor is one side of the body more convulsed than the other, as in true epilepsy. The history of a long-continued "spree," and the odor of alcohol, will also serve to distinguish them.

It is also necessary to decide between these convulsions and those due to cerebral extravasation. Here, again, the presence of paralysis is an important feature. It is never found in simple rum convulsions. Following the latter there is also a stupor from which the patient is readily aroused, while in apoplexy the coma is persistent. Here the history of the case is likewise of advantage.

Treatment.—During the attack little is to be accomplished by treatment. Subsequently cold water may be poured on the face, and opium or bromide of potassium may be given to moderate the nervous irritability, and promote sleep.

Hysterical Convulsions are peculiar to young unmarried females; but they may occur in the married state or in advanced life. Delicate women of nervous temperaments and excitable dispositions are generally the subjects. The disease is often connected with functional or organic disease of the generative organs; unsatisfied and uncontrollable passions, masturbation, etc., are not unfrequent causes.

The patient for some time previous to the attack may complain of a sensation in the throat, as if a ball were rising up and choking her (*globus hystericus*), or she may be affected with violent fits of laughter and crying, or with

some of the other varied forms of hysterical manifestations. As the attack appears the patient sinks down in a comfortable spot where there is no danger of injury. The limbs are jerked about irregularly, and with less force than in an epileptic convulsion. The breathing is jerking and spasmodic; sometimes she appears as if choking. She shrieks loudly at one moment, and at another mutters incoherently; close inspection will show that the patient is not unconscious, and that the pupils are in a normal condition. There is none of that lividity of the face or distention of the blood-vessels which is characteristic of epilepsy. The paroxysm may terminate in another fit of crying or laughing, or it may be followed by sleep. Often its close is accompanied by the discharge of a large quantity of pale urine.

Treatment.—A pitcher of cold water should be poured slowly on the face and head. This procedure may be repeated until the convulsion ceases. Should the attack be repeated, a shower-bath will be found an excellent remedy. In very delicate females, however, this would not answer, but the cold douche to the head can be employed without injury.

The subsequent treatment has reference to the general weakened nervous system of the patient. Cold bathing, tonics, antispasmodics, good diet, and the practice of self-control, should be recommended.

Tetanic Convulsions occur in tetanus. The disease arises generally from traumatic causes, such as wounds from rusty nails, etc., involving branches of nerves. Some cases arise from cold. The convulsions are caused by irritation of the spinal cord, which has been excited by injury of the peripheral nerve. They are tonic in character,

and extremely violent. When the muscles of mastication are affected, the jaw is tightly closed, giving rise to *trismus* or *lockjaw*. When the muscles of the back are involved, the body is arched and rests on the head and heels (*opisthotonos*). Contractions of the muscles on the anterior surface bend the body forward (*emprosthotonos*), contractions of one side give a lateral inclination, called *pleurosthotonos*. When tetanus is once fully established, a breeze, the creaking of a door, and other slight causes, suffice to excite a convulsion. Tonic spasm of the respiratory muscles generally kills, the patient dying from asphyxia.

Treatment.—Anæsthetics, opiates, chloral, or assafœtida, can be administered in large quantities.

CHAPTER XVII.

SUSPENDED FŒTAL ANIMATION.

Pressure on Umbilical Cord.—Injury to Brain.—Rupture of Umbilical Cord.—Asphyxia.—Syncope.—Congestion of Brain.

During the progress of labor the child is subject to many accidents which may supend for a time the functions of life or completely destroy it. Thus, the umbilical cord may be pressed upon by the head in its passage through the straits of the pelvis; the cord may be wound around the neck; the air-passages filled with mucus so that the child's blood remains unaërated, and a condition of asphyxia induced.

Profuse hæmorrhage, due to rupture of the cord or to separation of the placenta, occasions another variety of suspended fœtal animation known as syncope. The head may be compressed in the maternal passages, or by instruments, with such severity as to cause congestion of the brain.

Of these three conditions asphyxia is most commonly met with. The child in this, as in the former cases, is born apparently lifeless. The face is swollen and of a dark-blue color, and the lips are livid and everted. The extremities and general surface may present a similar appearance.

Respiratory movements are absent, or there may be a slight gasp, repeated at long intervals. The pulsations of