The abdominal wall must be narrower than the lumen of the stomach or the bowel within the abdominal cavity. In a recent enterostomy, particularly when the abdominal wall suppurated following the operation, this is not always the case; but it is so with gastrostomies and usually becomes so very shortly with enterostomies. Unless there is such a narrower point, the bag has nothing to rest against.

For draining terminal enterostomies an appliance with the tube-end protruding well beyond the bag is necessary. A short end may become occluded by the bowel wall, like in Figure 3, but the protruding end will not, like in Figure 4.

The essential feature of this principle is obvious. The inflatable bag provides an efficient plug when the disc on the outside is just at the right distance and prevents slipping of the bag. This is the reason that the appliance can not entirely be made up as a stock item: the surgeon has to fit the appliance first and has to determine just how far the disc must be placed, because this distance varies from case to case. Some patients — after initial fitting — may learn how to remove and clean the appliance, then to reinsert it.

Using proper caliber tubing and material for the bag it may be attempted to occlude any kind of leaking body opening, for instance cystostomy, vesico-vaginal fistula or thoracotomy.

---

**Allergy as a Factor in Headaches**

*By John A. Turnbull, M.D.*

*Boston, Massachusetts*

The discussion of headaches in this presentation will be made with migraine as a point of departure. The various nonmigrainous types will also be considered. They are known under such synonyms as sick headache, migraine, hemicranie, bilious headaches, hemicrania and migraine. These forms of headaches may be a simple or an extremely complex condition, shading at times insensibly into other disease pictures. It is possible only to attempt definition of the more classical types of the affection; there are those related forms which may be bound up with other morbid manifestations.

Typically migraine is a periodically recurring headache, predominantly unilateral in most cases, often prostrating, usually accompanied by nausea or vomiting, or both, lasting from a few hours to several days, and occurring in individuals in apparent good general health. In women the attacks frequently occur in association with the menses. Often the seizures are preceded by visual disturbances, which usually last about fifteen minutes. It is not essential for a patient to present every symptom for the diagnosis to be made. Cases are empirically separated into two groups: those of simple migraine without visual symptoms, and those of ophthalmic migraine with visual symptoms. The attacks may come suddenly without warning or they may be preceded by a period of hours up to a day or two, during which the patient knows that a seizure is brewing, because of a feeling of general discomfort and malaise. There is a general let down in the expression of energy and frequently there is great irritability. The pain is typically limited to one side of the head. It is quite common, nevertheless, for the other side to be involved simultaneously. During the course of the attack the pain may leave one side of the head to become established in the other. By far the most common symptom is nausea. Practically all patients experience it during their attack and usually it is present during the major part of the seizure.

Quite commonly the nausea leads to excessive vomiting, which sometimes relieves the pain transiently. Soon, however, the pain wells up again and the whole cycle may be repeated.

Headache is the most common feature and exhibits a great amount of variability as to location, quality, intensity and duration. In the most classical attacks, the headache begins on the average about fifteen minutes after the appearance of the scotomata, or other sensory phenomena, and frequently begins on one side and may remain so or become bilateral. As a rule, it is frontal, or occupies the vertex, but may involve the temporal regions or the occiput, sometimes as low down as the neck. There is usually pain over the eyes and the eyes are usually painful to pressure, and there is sometimes pain in the malar region. Occasionally there is well marked jaw ache. Throbbing or thumping usually indicates great pressure from within or without.

In some attacks, the head simply feels slightly sore, or heavy or dull or thick "like a block of wood," a frequent expression. Some patients say the pain is agonizing, impossible to describe. Some patients think the head will burst; others that it is being squeezed in a vise. Descriptions of bursting are more common. The pain is all-prevailing, gradually mounting to a maximum, then running along continuously without any break, with at all times a sudden accession. The severity of the pain may be conditioned by a number of factors. Movement uniformly increases it, bending over becomes impossible, noises of various kinds often aggravate the pain tremendously and cause certain patients marked distress.

Migraine may be preceded by a sense of heaviness, with yawning, dizziness, or depression, motor twichings, even sharp spasms, closure of eyelids, sensory phenomena, chiefly paresthesia, occasionally anesthesia, affecting the eyes or other sensory organs, ringing in the ears, blowing, whistling or a sense of taste, smell or of touch.

Symptomatic migraine implies that the symptoms...
represent actual organic disease, in which the underlying cause may be physical lesions. The most frequent are brain tumors, especially tumors of the pituitary gland or neoplasms in the ventricular system.

The organs, which have been declared at fault, have been the vasomotor centers, the sympathetic, the gastrointestinal canal, excretory and ductless glands, organs of generation, male and female, the various organs of sense, the eyes, ears, nose and tongue. Alterations in the secretory functions are frequently observed, early or late in the attacks, as vomiting of frothy mucus, sweating, coryza, and urinary secretions.

Bruckner (1): "There are four approaches which deserve special emphasis; those of allergy, gallbladder, abnormality and endocrine dysfunction and psychological. The vomiting which so often accompanies an attack, and which sometimes relieves it, thus naturally led investigators to the abdomen as a source of information. In the same manner it has led to the term 'bilious attack', a description often used by patients. Most of the opinions of the gallbladder phase of migraine depends on the presence of the abdominal symptoms."

McClure and Huntsinger (2) found roentgenologic evidence of gallbladder abnormality in a large proportion of their patients, and of functional disturbances of the liver. Hunt (3) found evidence of gallbladder and liver disturbances. He concluded that "local gallbladder disease or liver dysfunction is not a cause of migraine, but may occur as a result of repeated migrane attacks". Those who have given the most attention to the hepatic origin of migraine state that cholecystectomy is of no assistance.

ENDOCRINE THEORY

It is very frequent for the whole condition to have the onset with the menses. Attacks very commonly occur in association with the menstrual period and it is frequent for them to disappear during pregnancy and lactation and also at the time of menopause, although migraine may occur during or after the menopause.

The term psychogenic headache is frequently applied because of the vague manner in which the patient usually describes the pain. A definite statement about the actual characteristics of the headache is difficult to obtain, to which they exhibit no definite characteristics at all except agony. The type of pain is hard for the patient to describe or a number of different types are specified in which there is a cephalic pressure, or they state that it occurs in every part of the head. Turnbull (4) in: "The Tired, Weak, Exhausted, Depressed Patient" states: "Their are not imaginary symptoms. They are not just neurasthenic, hypochondric, or neurotic cases. In these cases headache is a common complaint, with dull pressure, tightness, feeling as if the head would burst." By avoiding foods to which they were sensitive, these patients were relieved of their headaches.

The allergy theory regarding headache is the predominating one. The other organs or systems, which are disturbed, are upset by allergic reactions in these organs. Turnbull (5) "These allergic reactions can occur in the gastro-intestinal tract, gallbladder, liver, eyes, ears, nose, sinuses, respiratory, liver, glandular, and in fact, in any part of the body. It is this allergic disturbance that has caused some to consider these organ disturbances as the original cause of the headaches."

Headache is heritage of the rich and poor, the great and the small alike. It has numbered among its sufferers many of the master minds. Hereditary influences are those carried by germ and sperm cells from generation to generation, but other influences may arise and act at an early age, or be delayed until later life. Turnbull states (5) "and manifest itself in headaches or other related allergic conditions. The chief cause seems to be an hereditary tendency to disease. With these individuals the stress and strain during life acts on the individual organism and its constituent cells, thus causing dysfunction in that organ or organs, and in case of headache or other allergic conditions, affects the vasomotor system."

Gray's Anatomy states: "The pia mater is a vascular membrane and derives its blood from the internal carotid and vertebral arteries. It consists of a minute plexus of blood vessels, held together by an extremely fine areolar tissue. It invests the entire surface of the brain, dipping down between the convolutions and lamina, and is prolonged into the interior, forming the velum interpostum and choroid plexus of the fourth ventricle. The lateral ventricles are serous cavities. They are lined by a thin diaphanous lining membrane, the ependyone, covered by nucleated epithelium, with cells scattered here and there in patches. It is moistened by a serous fluid, which is sometimes, even in health, secreted in considerable quantity."

"There is free communication between the ventricles and spinal fluid. To the vasomotor centre is delegated the function of maintaining an adequate blood supply to these vital centres and to the brain in general. If this regulating mechanism is disturbed various results may follow."

It is generally accepted from the work of Dandy (6) that following injection of air into cerebral ventricles, the greater part of the fluid is formed by the choroidal plexuses of the lateral, third, fourth, ventricles. There is a slow movement of the fluid from the lateral ventricle to the third ventricle through the foramen of Monro, hence via aqueduct of Sylvius, to the fourth ventricle; from the fourth ventricle the fluid escapes into the subarachnoid space through the foramen of Luschka, to be finally absorbed in the venous circulation through the arachnoid villi of the large venous sinuses. The two theories in respect to the method of formation of the fluid are: Mestrezal: The fluid is formed from the blood in the capillaries, of the choroid plexus by dialysis or ultrafiltration. Smith (8): the fluid is secreted by the plexus.

The occasional causing of a passive or active hyperaemia of the brain leads to a hyperaemia of the choroid plexus. This causes a more or less complete plugging of the foramen of Monro with the production of an increase of pressure in one or more ven-