ment in connection with another class of cases, uses these words: "When the retro-displaced fundus uteri is adherent, these daily emollient and hydrogogue tampons may in time, by their combined pressure and alterative action, bring about the absorption, or at least stretching, of the adhesion, and permit a replacement of the organ." I submit a case in point.

*Case 2.*—Mrs J., aged 24 years; had several induced abortions; no child at term. Had been treated for displacement by pessary, with apparent benefit. Afer a time the symptoms returned, and the physician introduced a larger instrument. It caused pain at once, and in a few hours there was a chill and then rise of temperature. I saw the patient next day and advised the removal of the instrument, which was taken away. It was a very large one. A sharp attack of inflammation ran its course in ten days. No abscess formed. A few weeks later I found the uterus retroverted and the fundus immovably fixed by adhesions in its mal position. At the request of the attending physician I then took charge of the patient. The treatment consisted wholly in the use of tampons of cotton with glycerine and boracic acid. The pledgets were small at first, and were placed in the posterior vaginal fornix, pressed into position with as much force as the patient could readily bear. The pledgets were increased in size and others were placed in front of the cervix. The vagina was packed below more and more fully and firmly each time with wool, until the canal was distended to its utmost capacity. At first the dressing was renewed daily, then every two days. At the end of two months the uterus was thoroughly replaceable, all tenderness had disappeared, and no evidence remained of the former presence of adhesions.

## A CASE OF INNOMINATE ANEURISM TREATED BY SIMULTANEOUS DISTAL LIGATION OF THE RIGHT CAROTID AND SUBCLAVIAN ARTERIES. RECOVERY.

*Read before the College of Physicians, of Philadelphia.*

BY H. R. WHARTON, M.D.,
ASSISTANT SURGEON, HOSPITAL OF THE UNIVERSITY OF PENNSYLVANIA

The following case was operated upon by Professor John Ashhurst, Jr.:

Andrew C., aged 42 years, who was born in Scotland and served for a time in the British army, and whose present occupation is that of a gardener, presented himself at Professor Pepper's clinic at the University Hospital with the following history: Eighteen months before his admission to the hospital he began to experience pain running from the throat to the right shoulder and arm, and this continued to be noticed at intervals until six months ago, when he began to be troubled with shortness of breath and complained of a paroxysmal cough and difficulty in swallowing; at this time he noticed a swelling above and a little to the right of the sternum.

From this time he suffered much from the symptoms above described, and had also great difficulty in sleeping in the recumbent position and spent a large portion of his nights in the sitting posture. The patient had never had syphilis, and the only thing to which he could attribute his present condition was a severe fall upon the right shoulder which had occurred two years previously.

The result of the examination by Prof. Pepper was as follows: The patient presented a swelling above the sternum extending from the middle line two inches to the right along the line of the clavicle. Inspection showed decided pulsation in the swelling and palpation revealed its expansile character. Auscultation detected no bruit or thrill in the tumor, but the heart sounds were heard over the area of swelling with great clearness; no murmur was detected over the right carotid or subclavian arteries; examination of the heart showed that its sounds were clear. There was noticed great venous suffusion of the face with distension of the venous trunks when the patient leaned forward. The left pupil was large, the right of moderate size; the right pupil promptly responded to light, the left one acted sluggishly. The radial and other accessible arteries were soft to the feel, so that there was no evidence of widespread arterial disease. A sphygmographic tracing taken by Dr. Westcott, showing the differences in the radial pulses, is subjoined. As the result of his examination, Prof. Pepper was of the opinion that the patient was suffering from an aneurism of the innominate artery.

The case was referred to Prof. Ashhurst and was admitted to the surgical ward. Prof. Ashhurst, after a careful examination of the patient, concurred as to the diagnosis of innominate aneurism and decided that the treatment by simultaneous distal ligature of the right common carotid and right subclavian arteries was that which offered the most hope of a cure of the aneurism or at least of benefiting the patient's condition.

On November 13, one week after his admission to the hospital, the patient was etherized and Prof. Ashhurst cut down upon and ligated the right common carotid artery just above the omohyoid muscle with a catgut ligature; the right subclavian artery was next exposed and ligated in its third part just outside the anterior scalene muscle with a ligature of the same material. The wounds were closed with silver sutures, drainage tubes being introduced, and were dressed with oiled lint, the whole right arm being wrapped in cotton.

No immediate effect was noticed in the aneurism from the application of the ligature, nor were there any cerebral symptoms. The patient did well after the operation, and on the succeeding day the temperature and color of the right arm were good. The wounds did well and in the course of a few days it was noticed that the tumor at the root of the neck had become smaller and firmer and that its pulsations had diminished in force; the dyspnœa and dysphagia had also diminished very markedly, and the patient was able to sleep comfortably in the recumbent posture. Up to the time of his discharge from the hospital repeated examinations failed to discover any pulsation in the radial artery. After this time the patient's improvement was continuous and he

was discharged from the hospital on January 13, just two months after the operation, at which time he was examined by Prof. Osler, who made the following report:

Inspection shows no pulsation visible; right sterno-clavicular articulation prominent. Palpation reveals systolic shock at right sterno-clavicular articulation and upon firm pressure a feeble pulsation can be felt; this is also noticeable when the finger is placed in the sternal notch. Percussion gives a clear sound beneath the first bone of the sternum until you approach close to the clavicle. There is a small area of dulness beneath area of prominence. Examination of the heart shows the apex beat visible just below the nipple; feeble cardiac pulsation felt on deep pressure. No increase of heart dulness; heart sounds clear at apex; at second right interspace, first sound feeble, second sound loud and ringing. Accentuated sound over first bone of sternum. Over the swelling at the right clavicular articulation, first sound is dull, free from murmur, and the second sound is loud. The accentuation of the second sound is heard as far as the middle of the right clavicle; most careful examination fails to discover any indication of murmur.

The treatment of innominate aneurism by the consecutive or simultaneous application of distal ligature to the right common carotid and subclavian arteries has been employed in a sufficient number of cases, and the results following the operation have been of such a nature that it is now established as a well-recognized surgical procedure in the treatment of this affection.

The *rationale* of the treatment of innominate aneurism by the distal ligation of the right common carotid and subclavian arteries are as follows: By the occlusion of the right common carotid and subclavian arteries, if both be tied simultaneously, the amount of blood passing through the aneurismal sac is diminished about two-thirds, and there is a proportionate slowing of the circulation of the blood through the sac; the circulation continuing through the aneurism is, probably, about one-third of the usual amount, representing the blood sent to the large branches given off from the first part of the subclavian. By means of this diminished and retarded circulation we have, in favorable cases, consolidation, to a greater or less extent, of the aneurism, either from the formation of a laminated clot on the inner wall of the sac, or from the extension backward of a thrombus which starts at the site of the distal ligatures upon the carotid or subclavian arteries.

If the ligatures be applied consecutively to the carotid or subclavian arteries, the circulation of the blood current through the aneurismal sac is diminished to a less degree upon the application of the first ligature. In cases which terminate favorably after this operation the aneurismal tumor diminishes in size and becomes firmer, the pulsation becomes less distinct, and the pain and pressure symptoms, if they had previously existed, disappear; that pulsation at the site of the aneurism is seldom entirely wanting is accounted for by the fact that a certain amount of blood still finds its way through the sac to supply the vessels given off from the first part of the subclavian.

The question as to whether it is better to practise simultaneous or consecutive ligation of the carotid and subclavian arteries in this form of aneurism, is one upon which the highest surgical authorities hold some diversity of opinion. Mr. Barwell, whose successful cases and writings upon this subject have given a great impetus to the treatment of innominate aneurism by distal ligature, is of the opinion that the most rational form of treatment consists in the application of simultaneous distal ligatures to the carotid and subclavian arteries in properly selected cases. He opposes the application of consecutive ligatures unless in exceptional cases; and in this opinion he is sustained by Mr. Erichsen, on the ground that by tying one vessel only, time is allowed for the gradual dilatation of the collateral vessels given off from the first part of the subclavian artery, thus rendering the application of the second ligature less effective in diminishing the amount of blood passing through the aneurismal sac. He concludes that the result of tying the right carotid artery alone for innominate aneurism is not satisfactory, as this vessel has been ligated for innominate or aorto-innominate aneurism thirty times, with twenty deaths; and in case of aortic or aorto-innominate disease it has been tied seven times, and in only one instance has it proved beneficial; he concludes, therefore, that in low innominate aneurism, which almost always involves, to a certain extent, the aorta, it is safer to tie simultaneously the carotid and subclavian arteries than to tie the carotid alone.

Mr. Holmes, upon the other hand, looks with more favor upon the consecutive application of the ligatures; he considers the carotid ligature most important, and recommends its application first, and reserves the ligation of the subclavian for a subsequent period. He is in favor of ligating first the vessel in the direction in which the aneurism exhibits the greatest tendency to spread. He also believes that the distal ligature is efficacious in the treatment of innominate aneurism which is of the mixed variety, which is associated with marked aortic disease; in this opinion controverting the previous teaching that innominate aneurisms associated with aortic disease are unfavorable cases for distal ligation. In this latter opinion he is supported by the favorable results following the ligation of the left carotid artery for aortic aneurism, as suggested by Mr. Cockle.

So far as I am able to ascertain, consecutive double distal ligation of the right carotid and subclavian arteries has been practised for innominate aneurism (as diagnosed) in eight cases, with three recoveries and five deaths, although there was temporary relief in one of the fatal cases.

I have been able to find the records of thirty-two cases of simultaneous double distal ligation of the right carotid and subclavian arteries for innominate aneurism (as diagnosed), in which the operation was followed by recovery in twelve cases, death in sixteen cases, and by temporary improvement in four cases. It will be seen that the results of both methods of treatment as regards the number of recoveries are nearly equal, but it must be remembered that the number of cases in which consecutive liga

tion was resorted to is very small in comparison with that in which simultaneous ligation was employed. I think, therefore, that at the present time the weight of surgical opinion is in favor of the views of Mr. Barwell that, in innominate aneurism, the simultaneous double distal ligation of the right carotid and subclavian arteries is both a more efficient and safer procedure than the consecutive ligation of these vessels.

## MOUTH BREATHING AND ITS TREATMENT.

BY N. R. GORDON, M.D.,
OF SPRINGFIELD, ILLS.

The evil results of mouth breathing, are due to the inspiration of atmosphere at a low temperature, the presence of dust and foreign matter in the air, the desiccating effect on the mucous membrane over which the air passes, and the disuse of the nasal passages for the normal function of respiration.

The pathological results are: chronic inflammation of the pharynx, larynx, and bronchi, and the adjacent tissues, accompanied with cough, hoarseness, loss of resonance of voice, impairment of sense of smell, and hearing. The pernicious effect of oral respiration is not impressed upon the minds of medical men, nor is it scarcely recognized as being an evil practice by the public. The practice is a very common one, especially during the winter season; there are a great many habitual mouth breathers.

A condition which gives rise to partial or complete nasal stenosis, is adequate cause for mouth breathing. Chronic hypertrophic catarrh is the most frequent cause of partial stenosis; the frequent congestion of the cavernous tissue from repeated colds, causes hypertrophy of the turbinate bodies, which partly close the nasal lumen, requiring the subject to resort to oral respiration; the necessity for mouth breathing is in proportion to the nasal stenosis; the transition from nose breathing to mouth breathing is gradual, and the parts by degrees become accustomed to the transfer of function. Many persons have a partial obstruction of the nasal passages; they breathe with comparative ease while in a state of repose, but upon taking exercise such as walking, they resort to mouth breathing to supplement the deficiency in the nose; others resort to it only during sleep; many contract mouth breathing from a careless habit, or possibly from a succession of colds in which the subject is forced to breathe through the mouth; in such cases the obstruction in the nose is the result of thickened mucosa.

A deflection of the septum to one side or the other, will produce a partial obstruction of the nares; the septum may be contorted like the letter S, giving a stenotic effect in each nostril; often coupled with deflection there is hypertrophy of the opposite tissues, making the stenosis complete. Any of the tumors that occur in the nasal cavity, such as the gelatinous, or mucous polypi, malignant growths, the adenoid growths of the post nasal passage, or exostosis of vomer may produce partial or complete stenosis of the nares; foreign bodies, such as seeds, buttons, stones, may lodge in the meati, and occlude the passage; paralysis of the dilator alae nasi prevent free nasal respirations; enlarged tonsils, tumors of the palate or uvula may interfere with nose breathing. Adhesions of the soft palate to the posterior wall of pharynx, and bands uniting the two lateral walls of the nostrils, the result of cicatricial contraction from strumous or syphilitic ulceration, will prevent nasal breathing.

The function of the nose is of a three-fold character: 1. Respiration. 2. Special sense of smell. 3. Vocal resonance. The temperature of the air, in its passage through the nose, is increased, and foreign substances, such as dust, is lodged on the irregular mucus surface of the nasal passages. If the inspired air is dry, it also gathers moisture. The terminal filament of the olfactory nerve are very properly distributed to the superior portion of the nasal passages, where it readily comes in contact with the odor-bearing atmosphere. In order that the vocal resonance should be perfect, the nasal and post-nasal passages should be free and open; any increase in tissue or obstruction in these passages impair the resonance of the voice.

In oral respiration the air enters the larynx at a temperature somewhat lower than is given it by a passage through the nasal chambers; this cold air excites inflammatory action, producing soreness, cough, hoarseness and other symptoms of pharyngeal, laryngeal, and bronchial irritation. The dust and foreign matter floating in the air finds but little to impede its progress until coming in contact with the vocal bands, and the adjacent sensitive tissues, thus adding another factor, in the production of inflammation. Owing to the dryness of the atmosphere in our dwellings, the mucus membrane of the mouth and throat, in its efforts to furnish the required additional moisture, becomes very dry and parched. Infiltration with thickening of the mucus, submucus, and glandular tissue, of the entire nasal and post-nasal passages occur, as the result of deprivation of the normal stimulus, afforded by respiration; such thickening interferes with the resonance of the voice, hearing, and sense of smell. The results arising from the loss of nasal breathing, are as important as the direct evils from mouth breathing.

*Treatment.*—The method of treatment adapted for the cure of mouth breathing will depend upon the cause. If the obstruction is due to deflection of septum, I have found the rotating burr and dental engine, the most practical and satisfactory method of relieving the difficulty. Exostosis can be removed in the same way. Abnormal growths of whatsoever character, must be removed by such means as seem best adapted to the various conditions existing in each particular case. The adhesions of the soft palate with the posterior wall of pharynx, should be dealt with in the most approved method for relieving such conditions; adhesions of the nasal walls should be severed, and pledgets of cotton kept in situ until the part heal. If the nasal stenosis is due to indurated hypertrophy of the turbinate processes, these will require removal by the galvanic cautery or Jarvis' wire snare.