Chronic Occlusion of Aortic Arch Branches*

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Partial or complete occlusion of aortic arch branches has commonly been considered a single entity, though it is readily subdivided into a number of distinct types. The classical variety, an idiopathic arteritis (Takayasu's disease or "pulseless disease") which occurs in young women is quite rare.\(^1\)\(^8\) Oclusions resulting from arteriosclerosis obliterans,\(^2\) thoracic outlet syndrome,\(^14\) embolus, aneurysm, dissecting aneurysm, syphilis, Buerger's disease, neoplasm, and thrombocytosis\(^12\) have all been recognized clinically and several are more important than the "pulseless disease" of young women. Incomplete examples of the syndrome are more common than complete ones and this probably explains to a considerable extent the lack of attention that has been given to this group of conditions. Since they are potentially disabling and may lead to death, they deserve careful scrutiny. In addition, it is now possible in most instances to make a proper etiological and anatomic diagnosis and in some cases to perform corrective surgery. In other cases medical treatment appears to be of benefit.

The case studies to be presented are in no way typical but rather exemplify the wide variety of clinical manifestations that may be encountered.

**Case Reports**

*Case 1*: E. F., a white woman aged 25, was first seen in 1949 with complaints of dizzy spells and fainting of eight months duration following pregnancy. She stated that pulse and blood pressure readings had always been difficult to obtain in her upper extremities. Three years before, following a pregnancy which terminated spontaneously at full term, she had severe but transitory pain in the left side of her neck posteriorly radiating to her head. A second pregnancy terminated normally seven months before. During labor she noted pain identical to that of the previous pregnancy. Following delivery she "went into shock" and a laparotomy was performed because rupture of the uterus was suspected, but no abnormality was found. She remained in a shock-like state for five or six days then regained consciousness. Three weeks after delivery she began to have episodes of pain in the right posterior neck radiating to the occiput, occurring every two or three days and lasting a few minutes to an hour. About four weeks after delivery she began to feel weak and dizzy on arising in the morning or when standing up quickly and on several occasions experienced brief periods of unconsciousness. She also had frequent episodes of dyspnea and infrequent occurrences of nocturnal dyspnea.

The general physical examination was within normal limits. Heart sounds were clear and the rate and rhythm were normal. A loud, rough, blowing systolic murmur with a gentle diastolic component was heard well in the pulmonary area but even more prominently above the left clavicle. It was transmitted up the left side of the neck and was accompanied by a systolic thrill. Changing from the recumbent to the sitting position produced a pulse rise from 80 to 130. Carotid pulsations could not be felt. The left radial pulse was weak and inconstant. The right was not palpable. No blood pressure could be obtained in the right arm, but it was 120 mm. of mercury systolic and 90 mm. diastolic in the left arm. Femoral, dorsalis pedis, and posterior tibial pulses were normal bilaterally and the blood pressure in each leg was 150 mm. systolic by palpation.

Extensive laboratory and x-ray examinations were within normal limits except for an angiogram which showed a dilated pulmonary artery and a distinctly abnormal aorta. There was the suggestion of a single branch arising from the proximal end of the transverse arch and it was thought that the infundibulum of a patent ductus arteriosus could be seen.

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It was decided that cardiac catheterization and retrograde aortography should be performed, but the catheterization was chosen first. Shortly after the cardiac catheter had been introduced into the right ventricle, ventricular fibrillation occurred. After 45 minutes of manual cardiac compression and artificial respiration a normal rhythm was restored with electric shock. Recovery was complete and uneventful but she declined further diagnostic procedures. A communication to McKusick nearly three years later advised that she was well and without symptoms.

At the time this patient was seen (November, 1949) the diagnosis was thought to be patent ductus arteriosus and a congenital anomaly of the vessels arising from the aortic arch. Subsequent reconsideration by Ross and McKusick and by ourselves has suggested instead that this is a case of classical “pulmonary disease” showing a rather slow progression. There is no known congenital anomaly which will result in the loss of both subclavian and carotid pulses, and pure cases of Takayasu’s disease may have murmurs indistinguishable from those of patent ductus arteriosus except that the transmission is unusually high. Such murmurs are probably due to collateral circulation. The degree of collateral circulation to the brain, in fact, is attested to by the fact that this patient survived, without apparent brain damage, cardiac massage of 45 minutes which indicates that there was sufficient blood flow even under these trying circumstances. This case has been reported more fully elsewhere.

Case 2: P. L., a 45 year old man, was seen in September, 1956 with a complaint of sudden onset of aching pain in the left shoulder while shelling butter beans. This lasted several hours and recurred the following day when it was accompanied by some pain and numbness in the arm. He was seen at that time and noted to have a weak to absent left radial pulse with a blood pressure on the right of 170/90 and on the left of 120/90. X-ray films and electrocardiogram were within normal limits. For a time there were intermittent episodes of pain occurring mainly at rest and after three weeks this pain disappeared, but on exertion, especially on walking up steps, an aching discomfort was noted in the left side of the neck and along the clavicle.

Physical examination revealed no palpable pulses in the left upper extremity. No bruits, thrills or murmurs were noted. Examination of the heart and lungs was within normal limits, as was the remainder of the examination. There was no neurologic change in the left upper extremity.

Laboratory examinations, including a Master’s test, were within normal limits except for a cholesterol of 314 mg. per cent and moderate osteoarthritis of the cervical spine. Oscillometric examination of the upper extremities showed a maximum deflection on the left of one division at 80 mm. of mercury compared to 3.5 divisions at 100 mm. on the right.

It was thought that he had a partial or complete occlusion of the proximal portion of the subclavian artery. The diagnosis of scalenus anterior syndrome was seriously entertained, although no cervical rib was present. It was felt unlikely that he had had an embolus secondary to a myocardial infarction or that the pulse deficit was the result of a dissecting aneurysm or tumor. A catheter arteriogram was performed by inserting a polyethylene catheter percutaneously into the right femoral artery. Films clearly revealed a complete block of the first portion of the subclavian artery about 5 mm. in length with narrowing and irregularity both proximal and distal to the block (Fig. 1). The innominate artery showed no narrowing nor did its branches including the vertebral, right subclavian, and right carotid appear abnormal. The left carotid artery, however, showed slight narrowing of its mouth on the left side. Films of the descending aorta showed no displacement or thickening of the wall, effectively ruling out a dissection (Fig. 2). Laminagrams through the area of occlusion indicated the presence of some calcification. Because the mouths of two vessels were involved, it was felt that this could not represent a thoracic outlet problem.

It was thought at the time that endarterectomy or grafting should be reserved for any sign of progression but additional experience has been gained since this patient was seen. It is our opinion that he has arteriosclerosis obliterans with complete occlusion of the left subclavian artery and early partial occlusion of the left common carotid artery. Endarterectomy is probably the procedure of choice and is almost certainly indicated in this case, even though there has been no progression of symptoms in approximately a year. Reconstitution of the arterial lumen would provide a safety factor by preventing propagation of the thrombus and by providing additional collaterals should occlusion occur elsewhere.

Case 3: V. S., a 36 year old white woman with diabetes mellitus was found in the course of a routine examination to have no pulses in the lower extremities. There had been moderate frontal headaches and nervousness but no other symptoms. The diabetes had been well controlled.

Examination revealed that the blood pressure in the right arm was 190/110. No blood pressure could be obtained in either the left arm or the right leg. The left radial pulse and the lower extremity pulses could not be felt. A loud rough systolic murmur was heard at the base of the neck and more faintly over the back but there was no precordial murmur. A pulsation could be felt in the abdominal aorta.

Laboratory findings included a positive Kline and several slightly elevated fasting blood sugars. X-ray films of the chest showed the heart within normal limits of size.
There was a faint suggestion of rib notching and it was thought that a poststenotic dilatation of the descending aorta was present on oblique chest films with barium swallow. The maximum oscillation in the right arm was 2.5 divisions at 140 mm. of mercury, 0.8 divisions in the left arm at 100 mm., and 0.5 divisions at 80 mm. in the right thigh.

It was felt that her condition represented a variant of coarctation of the aorta with narrowing of the left subclavian artery or a coarctation proximal to this vessel. No preoperative contrast studies were carried out. She was explored in February 1957 and found to have a complete occlusion of the left subclavian artery by an arteriosclerotic process. There was some narrowing of the left carotid as a result of a similar process. An arteriosclerotic plaque was also present in the mouth of the innominate artery and in the distal aortic arch. The abdomen was examined through a transdiaphragmatic incision and the abdominal aorta was found to be more or less completely occluded from a point just distal to the renal arteries. An arteriogram performed on the table showed patency of the distal iliac vessels and confirmed the abdominal occlusion. An uneventful left subclavian endarterectomy was performed with reappearance of the left radial pulse (Fig. 3). Eight days later the abdomen was explored and after freeing the distal aorta it was discovered that the patency in the distal iliac vessels was entirely segmental. Distally there was complete occlusion of the external iliac, hypogastric, common femoral, deep femoral, and superficial femoral bilaterally. Extensive endarterectomies were performed on all of these vessels with good blood flow except from the superficial femoral artery. It was felt that the block in this extended considerably further than the endarterectomy. After excision of the aorta it was discovered that there was a large partially occluding plaque in the orifice of the left renal artery and in attempting to remove this, the artery was torn. Consequently, a cuff of lyophilized graft previously excised bearing a renal branch was resutured to the main graft. The stump of the left renal artery was anastomosed to the graft branch without difficulty. Distally the anastomoses were made in the common iliac.

Postoperatively, because of the extensive endarterectomies, she was placed on heparin. She developed a large retroperitoneal hematoma which eventually led to obstruction of the ureters by pressure and necessitated re-exploration and evacuation four days later. Her course has been uneventful since that time. Urine output from the
left kidney was found to be excellent as early as five days postoperatively despite a renal ischemia of more than 30 minutes. She was able to return to work within a month and has subsequently remained in good health. There has been slight improvement in the oscillometric readings in the lower extremities with a maximum deflection of 1.4 units at 100 mm. of mercury in the right thigh and 0.6 units at 120 mm. in the right calf. An excellent pulse has persisted in the left arm.

Special studies to determine any possible atherogenic predisposition have been unrevealing. Serum cholesterol, 17-ketosteroids, 17 hydroxycorticoids, and fractional proteins have been within normal limits. All of the excised arterial tissue showed severe arteriosclerosis obliterans. There has been no suggestion of syphilitic arteritis. It is planned to carry out further surgery on the superficial femoral arteries if studies show the blocks to be segmental.

This patient undoubtedly suffers from premature atherosclerosis and is reminiscent of a case explored by Blalock and reported by Ross and McKusick.* The cases paraded as slightly atypical coarctations of the aorta and illustrate again that atypical findings are an indication for preoperative aortography. The ease with which endarterectomy may be performed in the subclavian artery was demonstrated in our patient. Similar ease should be experienced in performing endarterectomy for complete occlusions of any of the aortic arch branches. Some caution, however, should be exercised in performing endarterectomies in incompletely blocked vessels, as cerebral damage may result.

Case 4: E. D., a 62 year old railway conductor, was seen after herniorrhaphy was performed elsewhere for a routine physical examination to see if he should be returned to duty. He had no symptoms referable to his upper or lower extremities or any symptoms suggestive of chronic carotid occlusion.

Physical examination revealed absent radial pulse in the right arm, a faint thrill over the base of the right neck, and a blood pressure of 92/80 in the right arm compared to 130/90 in the left arm. A definite bruit was heard at the base of the neck. No subclavian or axillary pulsation could be made out. The right common carotid pulsation was much weaker than the left. There were no positional findings suggestive of a thoracic outlet problem. Oscillometric examination of the upper extremities revealed a maximum excursion of 1.5 at 80 mm. of mercury in the right arm compared to a maximum of 4.5 at 100 mm. on the left side. Pulses, blood pressures and oscillometric readings were within normal limits in the lower extremities. No abnormality of the heart or lungs was noted.

Roentgen examination of the chest showed some tortuosity of the aorta consistent with his age. The heart was unenlarged. There was no cervical rib.

*Case E. L. p. 707.‖

FIGURE 3 (Case 3): Photomicrograph of endarterectomy specimen showing its clearly arteriosclerotic character. Compare to Figure 4 (x 10). Courtesy Armed Forces Institute of Pathology.
A diagnosis of arteriosclerosis obliterans involving the innominate artery or more probably the right subclavian and right common carotid arteries separately was made. Since there were no symptoms and the carotid itself was definitely patent, surgical intervention was considered inadvisable. It is our opinion that endarterectomies in arteries incompletely blocked such as the common carotid will be much more dangerous than similar procedures on arteries already completely occluded. Although this may eventually turn out to be improper reasoning, there is at present no precedent on which to base other conclusions. He will be followed at intervals and surgery will be recommended if any symptom of carotid occlusion develops.

DISCUSSION

Etiology

Congenital anomalies rarely result in complete occlusion of aortic arch branches. Aortic arch anomalies including double arches do not cause absence of pulses. Patent ductus arteriosus may lead to a slight diminution, but not to an obliteration of the pulse. Several well authenticated cases of classical “pulseless disease” have had murmurs in the high anterior chest thought to be due to patent ductus arteriosus. These murmurs may be due to collateral circulation. It is, therefore, possible that cases considered to be patent ductus that have an absent radial pulse may be pure idiopathic arteritis with occlusion. Coarctation of the aorta may be accompanied by differences in pulse or blood pressure in the two arms, but an absent pulse in the left arm is probably found in less than 5 per cent. This may be caused either by a coarctation situated proximal to the left subclavian or by concomitant narrowing of the left subclavian artery. Origin of both subclavian arteries distal to a coarctation with absent pulse in all four extremities has been reported. An absent carotid pulse is probably a very rare finding in congenital malformations and the absence of carotid and subclavian pulses on the basis of congenital malformation probably does not occur.

The most important and best known variety of arteritis which may lead to aortic arch branch occlusion was described by Takayasu in 1908. Although about 100 cases have been recognized, only a few have been from the United States. A disease

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**FIGURE 4A**

*Figure 4A*: Photomicrographs from a case of classical “pulseless disease.” Courtesy Armed Forces Institute of Pathology. *Figure 4A*: Transverse section left common carotid artery. Note the massive intimal and adventitial thickening. The lumen is slit like. A severe arteritis and periarteritis were present. The findings are quite distinct from those of arteriosclerosis (atherosclerosis) (X 6½). *Figure 4B*: Longitudinal about 4 cm. above the aortic valve. The gradual transition from a relatively normal aortic wall to one showing intimal and massive adventitial thickening is clearly shown. The basic pathology is similar to that seen in the left common carotid artery. Compare to Figure 3 (X 6½).
of young women, it is insidious in onset and results primarily in aortic arch branch occlusions, but may be more widespread. Ocular and cerebral symptoms predominate. The course may be short or long with death the usual outcome. The distinctive pathology is shown in tissue from a 16 year old female with sudden onset of symptoms six months prior to death (Fig. 4). This patient initially showed a marked change in the pulse pressure of the left arm and clinically was thought to have a coarctation of the aorta. At autopsy the subclavian arteries were occluded and the thickness of the aortic and carotid wall was in places increased to as much as 8 mm. Changes in the aorta extended from 4 cm. above the aortic valve to just beyond the ostium of the left subclavian artery. These changes are grossly and microscopically distinct from those of atherosclerosis.

Syphilitic arteritis may result in narrowinga (Fig. 5) or occlusion of aortic arch branches as well as coronary ostia and this may occur in the absence of aneurysm.b Other types of arteritis which are rare causes of occlusion of aortic arch branches include "giant cell" arteritis and Buerger's disease.c

Arteriosclerosis obliterans (atherosclerosis) is a not uncommon cause of occlusion of one or more aortic arch branches. Undoubted examples involving the common carotid artery are not infrequent in the neurologic literature.d Kinney reported a case as an arteritis which on autopsy proved to be arteriosclerotic.e It would be our expectation that this group will eventually be the most important one with many presently unrecognized cases.

Repeated trauma or trauma superimposed on a previously diseased artery may result in thrombosis. In the thoracic outlet syndrome there may be chronic trauma to the subclavian artery. Schein, Haimovici, and Young collected 30 cases of arterial thrombosis associated with cervical rib.e Eleven of these developed minor gangrene, two required major amputation, and three developed hemiplegia from extension of the occlusion into the carotid artery. On rare occasions thrombosis may result from trauma of effort. Direct trauma to any large vessel may result in thrombosis but this occurs infrequently.

Pressure from an arterial aneurysm may cause narrowing of an artery but without

*Courtesy Dr. Pelayo Correa, University of California and Dr. William C. Manion, Armed Forces Institute of Pathology, Washington, D. C.

FIGURE 5: Transfemoral catheter arteriogram in a 64 year old Negro male with an aneurysm of the arch of the aorta. There is constriction of the base of the left common carotid artery probably due to syphilitic arteritis.
superimposed thrombosis, propagation of laminated clot, or severe syphilitic arteritis, occlusion is rare. In occlusion due to arterial embolus, the block will generally be somewhat more distal than the ostia of the aortic arch branches but even multiple proximal occlusions may occur.\textsuperscript{12}

Neoplasms may cause arterial occlusion by pressure or by invasion, but such occlusions are quite rare.

Conditions with hypercoagulability of the blood can cause occlusions of aortic arch branches, but, generally, these are in smaller vessels.\textsuperscript{14} We have seen benign thrombosis after the use of the subclavian artery for catheter arteriography.\textsuperscript{23}

Unequal pulses are a not uncommon result of dissecting aneurysm but complete loss of pulsation of an aortic arch branch is apparently infrequent. Reports can be found in the literature, however, of occlusion of any or all of these vessels by a chronic dissection.\textsuperscript{38}

Symptoms and Course

The exact symptoms depend on the underlying anatomical nature of the occlusion, the etiological cause, the presence or absence of additional small vessel occlusions, age, sex, and the status of the collateral circulation. It is not surprising that both symptoms and course are extremely variable.

Unilateral chronic common carotid artery occlusion commonly results in syncopal attacks, seizures, mental deterioration, and a variety of visual defects. Persistent or episodic hemiplegia, facial atrophy, gangrene, hearing loss, claudication of the muscles of mastication, etc., may also occur. Bilateral common carotid occlusions are similar but symptoms are usually more severe and more frequent, and the disease is more likely to progress to death. The syndrome of internal carotid occlusion is essentially indistinguishable.\textsuperscript{4}

Although occasionally asymptomatic, chronic subclavian occlusions generally result in decreased work tolerance, shoulder or arm pain precipitated by exercise, and in severe cases, atrophy or gangrene. There is also danger of extension of the disease to the common carotid artery. Obstruction caused by chronic trauma to the subclavian artery is likely to produce more severe symptoms because of concomitant spasm.\textsuperscript{13}

Diagnosis

Chronic occlusion of the aortic arch branches must be kept in mind in the differential diagnosis of a very large group of conditions including angina pectoris, chronic dissecting aneurysm, neoplasm of the chest, cervical disc, musculoskeletal disorders of the shoulder girdle, temporomandibular joint syndrome, and numerous conditions involving the eyes or brain. Once suspected, it will usually not be difficult by careful physical examination to rule it in or out.

Blood pressure and pulse changes are of prime importance. Bruits in the axilla and at the base of the neck will often aid in localization of partial occlusions. Careful neurologic examination and especially competent examination of the eyes is of extreme importance.\textsuperscript{4,15}

Where there is a possibility of direct surgical treatment, contrast visualization is recommended. This can be done by angiocardiography or more precisely by direct aortography. Transfemoral catheter aortography is probably the most valuable single method (Figs. 1 and 2).\textsuperscript{11}

Treatment

Methods of treatment and their indications are slowly evolving. There is a great deal of misconception. The usual teaching, for instance, in regard to emboli causing occlusion in the upper extremities is that such emboli are not dangerous and need not be removed. Recent studies indicate that there is a very considerable incidence of gangrene and subsequent disability and that removal of the emboli should generally be undertaken.\textsuperscript{24} Partial asymptomatic occlusions probably do not justify either prolonged medical or surgical therapy at this time, though further knowledge may bring a more vigorous approach. In complete occlusion, even where asymptomatic, the danger of progression is such that treatment should probably always be given serious consideration. Where symptoms are prominent, of course, treatment should be carried out whenever possible.

The most useful and increasingly used medical treatment is long term anticoagulant administration.\textsuperscript{29} Where surgery is unduly difficult or contraindicated this method is worthy of trial.

Sympathectomy and simple excision of the occlusion have been carried out a number of times without apparent benefit.\textsuperscript{24} An exception is subclavian excision for occlusion secondary to the trauma of a cervical rib where improvement had been reported presumably on the basis of decreased arterial spasm.\textsuperscript{27}

The more promising methods of treatment are concerned with restitution of arterial blood flow and increasingly frequent reports are beginning to appear in the literature.\textsuperscript{24,44} The two main methods available are endarterectomy and the use of an arterial graft. The method should be chosen with regard for the particular anatomical
problem and for the experience of the surgeon. Endarterectomy is probably best suited to short occlusions, but should be a good method in most cases due to arteriosclerosis. Grafting is probably the only satisfactory method in obliterative arteritis, in traumatic thrombosis, and where the block is extremely long. Time and experience, however, may well modify these views. When endarterectomy in a case where syphilitic aortitis had obliterated all four great vessels. In another similar patient Bahnsen inserted a by-pass graft between the arch and the patent portion of the common carotid artery with immediate relief of dizziness, tinnitus, and convulsions. Denman, Ethie, and Duty have used arterial grafts for insidious thrombotic occlusion of the cervical carotid arteries. Davis, Grove, and Julian have treated a case of thrombotic occlusion of the branches of the aortic arch by grafting. DeBakey and Crawford have reported resection and homograft replacement of the innominate and carotid arteries and have described a shunt to maintain circulation. From such case reports it appears clear that considerable benefit may be derived from arterial reconstruction or replacement.

SUMMARY

Partial or complete occlusion of aortic arch branches has commonly been considered a single entity though readily subdivided into more than three distinct types. The classical variety, an idiopathic arteritis, occurs in young women. Arteriosclerosis obliterans may cause similar occlusions. Trauma may cause work injuries or pressure from a cervical rib may also cause occlusion. Embolus, aneurysm, dissecting aneurysm, syphilis, Buerger's disease, and neoplasm may be causative occasionally.

Symptoms of chronic carotid occlusion include syncope, stroke, mental deterioration and visual loss. Chronic subclavian occlusion may cause shoulder or arm pain, decreased work tolerance, atrophy, and gangrene.

Four case studies are presented. A young woman with classical "pulseless disease" survived ventricular fibrillation, brought on by cardic catheterization. A man with angina-like shoulder and arm pain was shown by arteriography to have left subclavian occlusion. A woman of 36, clinically thought to have coarctation, proved to have arteriosclerotic occlusion of the left subclavian artery and the abdominal aorta. An endarterectomy of the first portion of the subclavian artery and excision and grafting of the abdominal aorta were done. A man with asymptomatic right subclavian and partial right carotid artery occlusion due to atherosclerosis has been followed but has had no treatment.

It is felt that selected cases of chronic carotid and subclavian occlusion should be treated by endarterectomy or grafting and that definitive studies of this group should therefore be undertaken whenever possible.

RESUMEN

Aunque en realidad la oclusión parcial o completa de las ramas del arco aórtico se subdivide en más de tres tipos, generalmente se han considerado como una entidad única. La variedad clásica, un arteritis idiopática, se ha considerado una entidad única. La arteriosclerosis obliterante puede causar clínicamente occlusiones similares. También el trauma, tal como la compresión ejercida por una costilla cervical, puede causar la oclusión. Ocasionalemente la causa puede ser la embolia, el aneurisma, el aneurisma disecante, la sífilis, la enfermedad de Buerger y las neoplasias.

Los síntomas de la oclusión carotidea incluyen: ataques sincopales, hemiplejía, deterioro mental, y pérdida de la vista. La oclusión crónica de la subclavia puede causar dolor del cuello o del brazo, disminución de la tolerancia al trabajo, atrofia y gangrena.

Se presentan cuatro casos. Una enfermedad con la clásica "enfermedad de la falta de pulso" (asfixia crónica) sobrevivió a la fibrilación auricular provocada por la cateterización cardíaca. Un hombre con dolor anginóide en el hombre y en el brazo, se encontró que tenía, según lo demostró la arteriografía, una oclusión de la subclavia izquierda. Una mujer de 36 años que se creyó según la clínica que tenía coartación, se demostró que tenía oclusión arteriosclerosa de la subclavia izquierda y de la aorta abdominal.

La endarterectomía de la primera porción de la subclavia izquierda, y la excisión e injerto de la aorta abdominal se hicieron. Un hombre con oclusión asintomática de la subclavia derecha y oclusión parcial de la carótida derecha debida a arteriosclerosis, se pudo observar pero se trató.

Se considera que casos escogidos de oclusión carotidea crónica así como de oclusión de subclavia se deben tratar por endarterectomía o injerto y que deben hacerse estudios bien oportunos antes de emprenderse estos procedimientos, cuando sea posible.

RESUME

L’occlusion partielle ou complète des branches de la crosse aortique a été généralement considérée comme une seule entité, bien qu’elle ait été subdivisée en plus de trois types distincts. La variété classique d’artérite idiopathique, survient chez les jeunes femmes. L’artérosclérose oblitérante peut provoquer cliniquement des occlusions
asze semblables. Une blessure, telle que la compression d'une côte cervicale, peut également provoquer l'occlusion. L'embolie, l'ancrystmas, l'ancrystmy disséquant, la syphilis, la maladie de Buerger, et la néoplasie peuvent être éventuellement des facteurs déclenchant.

Les symptômes de l'occlusion chronique de la carotide comprennent les attaques syncopal, l'hémiplegie, les troubles mentaux, et la perte de la vue. L'occlusion chronique de la sous-clavière peut provoquer une douleur du bras ou de l'épaule, une fatigabilité au travail, l'atrophie et la gangrène.

Les auteurs présentent quatre cas. Une jeune femme, atteinte de la classique "affection sans pouls" survenu à une fibrillation ventriculaire, provoqué par le cathéterisme cardiaque. Un homme atteint d'une douleur de l'épaule et du bras évocatrice de l'angiome de poitrine se révèle par l'artériographie être atteint d'une occlusion de l'artère sous-clavière gauche. Une femme de 36 ans, qu'on pensait atteinte cliniquement d'une coarctation, fit la preuve d'une occlusion athéromateuse de l'artère sous-clavière gauche et de l'aorte abdominale. Une endarteriectomie de la première partie de l'artère sous-clavière, l'exérèse et une greffe de l'aorte abdominale furent pratiquées. Un homme atteint d'occlusion de l'artère sous-clavière droite asymptomatique et d'occlusion partielle de la carotide droite imputab.es à l'artériosclérose fut suivi mais ne reçut aucun traitement.

L'auteur pense que des cas choisis d'occlusion chronique de la carotide et de l'artère sous-clavière devraient être traités par l'endarteriectomie et la greffe, et que des études précises sur ce groupe devraient ensuite être poursuivies dans la mesure du possible.

ZUSAMMENFASSUNG


Es wird die Auffassung vertreten, dass ein chronischer Verschluss der art. carotis und art. subclavia mit Endarteriectomie oder Transplantation behandelt werden sollte, und dass daher genau festgelegte Untersuchungen der Krankheitsgruppe—wenn irgend möglich—vorgenommen werden müssen.

REFERENCES

17 Takayasu (see Caccamise, W. C. and Whitman, J. F.).