On the Pathology and Diagnosis of

Thoracic Aneurism.

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To illustrate the subject of "Thoracic Aneurism", I intend giving the details of the clinical history, & post-mortem appearances, of a few cases which have occurred under my own charge whilst Medical Clerk in this hospital. Before doing this, it may be well to give a short description of those conditions of the aorta which precede the formation of Aneurism; this description, being merely a connected view of the appearances observed after death in our own cases, & in other similar ones from time to time examined in the pathological theatre.

The diseases to which the aorta is subject appear to be chiefly the atheromatous & the calcareous degenerations. An acute
inflammation of the lining membrane of the aorta has been described by several authors, but since this is an affection almost never seen or if it exist, cannot at all be considered a frequent cause of aneurism we need not make further mention of it. A chronic inflammation of the lining membrane of the arteries has also been described, to account apparently for the presence of abnormal deposits in the coats of the vessel.

It is unnecessary, however, to suppose that these deposits are the result of any cause action. Numerous have been the names applied to the different deposits in question; it is of no practical importance to make mention of any other than the soft, or atheromatous, or the hard, or calcareous.

The earliest stage of the atheromatous disease merits the greatest attention. There is scarcely an aorta belonging to a patient who has suffered from any chronic or exhausting disease, who does not exhibit abundant proofs of extensive disorganization.
The arteries may appear perfectly healthy to the naked eye, at the same time when examined under the microscope, display the natural structure of its coats obscured by the presence of granular deposit. And, this too, in cases where there is not the smallest ground for supposing that any inflammation, acute or chronic had ever taken place. In many cases which I have examined, the aorta from its characters presented to the naked eye has been pronounced perfectly healthy. It has presented the smooth shining surface which it has in health without the faintest trace of opacity or other abnormal appearance; yet, on examining these specimens with the microscope I have found not only the inner but the middle coat also, extensively infiltrated with granular deposit. This was more particularly well-marked in the case of a woman who died in the hospital several months ago, from poisoning by Arsenic.

It may be that external hemorrhoids is
sometimes the result of violence or injury, but internal aneurisms can hardly ever be traced to any such cause. It often happens that aortic aneurisms can be referred to some violent excitation as an exciting cause but before this exciting cause can come into operation, vast changes must have been wrought in the structure of the artery. The first trace of disease in the aorta is seen in the deposition amidst the fibres of its inner coats of numerous fatty granules. Since it is highly probable that thoracic aneurism cannot exist, unless the coats of the aorta have at some time or other undergone this atheromatous degeneration, we must look to the origin, causes & results of this disease.

In its earliest stage, it is found, that the exceedingly delicate, homogeneous membrane that lines the inner coat is free from any abnormal deposit. On examining the layers of the inner coat, that lie outside this homogeneous lining, the delicate fibrils of the tissue, are found
intertwined with numerous minute
rounded granular bodies, strongly re-
fecting light, with well-defined margins,
and dissolving on addition of ether or alcohol.
Though the first trace of abnormal ap-
pearance exists in this situation, the layers
of the middle coat become soon involved,
so in course of time present a more ex-
travasal degeneration than the internal.
The deposit having once commenced in the
middle layers goes on more rapidly, and
becoming more and more abundant, renders
the artery more and more unfit for its
function. As the deposit increases in
quantity the individual granules begin to
collapse, causing disorganization and breaking
up of the filibrils & the ultimate formation of
opaque whitish yellow points, visible to the
naked eye. These opaque points are found
to be immediately under, or to have very
slightly elevated the homogeneous lining
membrane, or to involve the layers of the
intimal & middle coats more or less
extensively. These atheromatous deposits are
found to be of various sizes, and to have a consistency resembling that of putty. On examining under the microscope, it would present numerous granular bodies with very often rhombooidal flakes of cholesterine, but without the least trace of any organic cell formation. The atheromatous granules present in short, the same characters as the fatty particles which are found in the kidney and liver in fatty degeneration of these organs as well as in all the tissues when undergoing the process of softening.

When a piece of the arterial coat affected with fatty degeneration is boiled in a mixture of alcohol and ether, the fatty matter is dissolved out, and on cooling the whole fluid presents a cloudy turbid appearance from small particles of bile and cholesterine separating. On evaporating the solution, the fatty granules become more and more numerous. If a drop of the alcoholic solution be placed on a glass and examined under the microscope, it is found to contain a large
quantity of bright reflecting granules similar to the atheromatous granules as seen in the coats of the artery, but often much larger and coalescing into droplets of oily fluid mixed with these are crystals of Cholesterol. The fatty matter thus extracted by alcohol and ether, is capable of being saponified with Potash or Soda, as presents the same physical and chemical characters as Olein. In short, the Atheroma which is deposited in the coats of the arteries may be said to consist chiefly of Olein with a small quantity of Cholesterol.

As the Atheroma increases in abundance the fibres of the internal and middle coats become broken up and obliterated. The appearances presented by an artery affected with Atheromatous disease are very various. In some parts, are seen speckled points, the size of a pin's point; in other places they have attained greater size; in others softening of the atheromatous masses has taken place breaking up the internal coat and giving the artery a
worn taken appearance; the extent of the destruction of the coats being different in different places; in some parts the whole thickness of the inner and middle coats has been eroded; in others where the disease has not advanced so far, some of the layers of the fibres remain apparently healthy but on examination with the microscope are found infiltrated with granules deposits. In addition to these appearances, it generally happens that calcareous plates are present in more or less abundance. No statistical observations have as yet been made to show the cause of this disease of the arteries. Mercury, Syphilis, or Intemperance have all been supposed to have a considerable share in its production. Our knowledge of the constitution of the blood in such cases is so vague as to render it impossible to refer the disease to any ascertained state of the blood. Still, it is evident, that the presence of Atheroma in the coats of an
artery must be due to one or both of two things; viz.: either a peculiar state of the blood or a peculiar state of the arterial tissues. If it is to be referred to a particular state of the blood, then we must suppose that owing to some unknown peculiarity in the primary assimilation or in the particles assimilated, the blood becomes loaded with more materials that are found to constitute Atheroma when deposited in the Artery. This condition of the blood must, of course, be referred to all the numerous causes that derange or disorder the primary assimilation, that have been long known to deteriorate in some unknown manner the healthy constitution of the blood. Everything that diminishes the force of the vital powers, such as chronic disease of any organ, interference in eating or drinking, poverty or bad diet, Mercury or Syphilis, in short, whatever tends to alter the healthy constitution of the blood must be considered to be the ultimate cause of the Atheromatous disease of the Arteries.

This may, indeed, be true, but we
find the disease in question so universal, and occurring in all classes of people, where none of the causes of their supposed deterioration of the blood, appear to have been in operation that we must be careful in adopting any such views founded upon data so unsatisfactory. Indeed, from what I have seen, I am inclined to believe that the existence of fatty granules is a certain amount in the walls of an artery, although not strictly in accordance with the healthy condition, is so common that it cannot be regarded as a very great deviation from the normal structure. And, hence I think that the theory which supposes them to be formed by a chronic inflammation is a gratuitous assumption. It seems, rather, to be the natural process of decay, in their words, one of the natural results of old age, occurring in consequence of an alteration in the structures composing the coats similar to that which the other tissues in the body undergo. In consequence of the softening of the atheromatous masses at the erosion of the internal of middle
coals, the conditions for the formation of aneurism are now almost completed.

Whether a portion of an artery, the seat of atheromatous deposit, ever becomes converted into calcereous plate, does not appear satisfactorily proven. The time of life in which these calcereous plates abound most, has generally perfect immunity from aneurism, which is the result of atheromatous ulceration. Very seldom, indeed, is an artery affected with atheroma, free from calcereous plates; but how are we to be ever satisfied, that that identical portion of an artery, the solution of which has given rise to aneurism, was ever affected with calcereous degeneration? With respect to the calcereous degeneration of the arterial coats, two views seem to be generally held. The first is, that the artery has been atheromatous at some period, so that the calcereous matter is the unabsorbed earthy constituents of the atheroma. Another view is, that, atheroma having been first deposited, fresh deposits of earthy matter take place.
from the blood, into that portion of the artery affected with atheromatous disease. It appears to me, however, that the calcareous plates which we find in the aorta are often formed entirely independent of atheroma. This seems to be shown by the fact that in the atheromatous portions of an artery, the fibres are entirely destroyed, and therefore were the calcareous plates formed by deposition of earthy matter in these parts, they would, of course, be destitute of any fibrous matrix. If, however, we dissolve the earthy matter of one of these plates, by hydrochloric acid, we will find that it has a fibrous matrix, and that matrix is the same as the fibres of the arterial coats. It seems, in short, that these calcareous plates are formed by the deposition of earthy matter in the fibres of the coats, just as we find earthy matter deposited in the fibrous tissues without any previous degeneration.

Having now examined those conditions of the aorta that precede the formation of aneurism, we are prepared to speak of aneurism itself.
It is needless trouble to make mention of all the different subdivisions of the genus Aneurism. It is unnecessary, in a practical point of view, to make any further distinction than between simple or Aneurismal dilatation, the result of Atheromatous disease, or Aneurism, the result of Atheromatous ulceration. There is one most important form of Aneurism, viz: The dissecting (in which blood becomes diffused between the external & middle coats after erosion of the inner layers has taken place in consequence of Atheromatous disease) which has never come under our observation, & therefore cannot be here described.

Aneurism, properly so called, cannot occur without erosion or ulceration of the internal & middle coats having preceded the expansion of the external tunics into the form of a distended humour.

Simple or Aneurismal dilatation, in which no erosion of the inner layers has taken place, often attain great size or may assume various forms; appearing fusiform, cylindrical or even globular; but that a small circumscripted portion of the walls of the aorta, should become
expanded into the form of a sacculated
aneurism, without any erosion of the inner
core of the vessel, appears to be impossible
and probably hardly ever occurs.

Examination of an aorta however parti-
ally and slightly dilated, displays fatty deg-
ervation of its inner coats. No amount of
hypertrophy of the heart, or any other exciting
cause is capable of causing dilatation without
pre-existing disease of the artery itself. It is dif-
ficult to show why in one case fatty degen-
eration of the coats is the precursor of
dilatation, at in another why no dilatation
should occur, even though the inner coats are
infiltrated with granular deposit. In dilatation
of the aorta, the left side of the heart is
almost always found hypertrophied,
whether this hypertrophy of the heart leads
to the dilatation of the atheromatous aorta,
or whether it is not rather the result of the
dilatation, appears at present doubtful. It is
highly probable that a dilatation of the aorta
in the first part of its course, immediately
below the aortic valves, may induce
Hyper trophy, but otherwise, dilatation rarely becomes apparent until a considerable amount of hypertrophy of the left side of the heart has taken place. Generally speaking, neither dilations nor aneurysms of the aorta have the power of inducing cardiac hypertrophy to the same extent as valvular disease. Where there is no hypertrophy of the heart, atheromatous disease of the walls of the aorta is allowed to pursue its course; or by its subsequent extension to give rise sooner or later to the conditions favourable for the development of aneurysms. But, should hypertrophy of the heart supervene before actual destruction of the inner coats has followed on an erosive degeneration of their fibres, then dilatation of the aorta appears to be the general result. In many instances both processes are found to be at work, the result being the formation of the so-called mixed form of aneurysm. That, namely, in which general dilatation of the aorta having taken place, the inner coats of the sac give way at a circumscribed portion of its extent, and a
sacculated tumour formed by the expanded external tunic takes its origin. It rarely happens that the inner coats have been eroded & remained so for some time, without aneurism making its appearance.

It may be sometimes difficult to distinguish between dilatation of aneurism of the aorta, from the circumstance that in the latter, when of some standing, a smooth internal lining continuous with that of the artery itself is found prolonged into the intima. The situation at which the general calibre of the aorta, becomes interrupted by the presence of an aneurismal sac, is invariably marked by a well-defined elevated ridge, which is never seen in cases where the aorta is simply dilated. This ridge, at the seat of erosion of the inner layers, or as it were a little behind the neck, abrupt margins of the internal or middle coats (which are often prolonged for a short distance into the walls of the aneurism,) is due to the presence of a new formation, which begins to appear here, continuous with
from the lining membrane of the aorta, and ultimately the lining membrane of the aneurism itself. That this is not the lining membrane of the aorta prolonged and expanded into the interior of the sac, appears evident from its structure. It consists of an indefinite number of layers of rather pliable fibrinous tissue, easily separable from each other, having internally a smooth shining appearance, surface, resembling the lining membrane of the arteries. But it is not lined by a homogeneous basement membrane, as in the arteries, or its constituent fibers are desirous of any definite arrangement. This new formation becomes so amalgamated, as it were, with the inner coats of the vessel, that it is impossible to say where the one commences, and where the other terminates. It appears to be an attempt after a very successful one, at the regeneration of an internal coat, or the first of most highly organized of a series of laminated layers of fibrinous capsules, which are generally found in aneurisms, when placed in conditions favourable for their formation. Outside this lining membrane of the aneurismal sac, small scattered patches
of the remains of the middle coat, may often be found, in an advanced stage of atheromatous degeneration. The external coat of the artery has become thickened, or matter adhering more or less intimately with neighboring fibrous tissue. The layers of fibrine further removed from the current of the circulation are paler, firmer, and more highly organized than those in immediate contact with the blood; in accordance with the well established law, that the further any deposit is removed from the influence of an organized tissue, the more feeble will this influence prove, and the more imperfect will be any attempt at organization.

In one respect the living membrane of atheromatosel fibrine resembles the inner coats of an artery; it is subject to the atheromatous or calcereous degeneration. We find its fibres often infiltrated with granular deposit here or there. spots of atheromatous matter appear involving its whole thickness more or less extensively. In other places, the greater part of its entire thickness is eaten through, giving it a worm-eaten appearance.
as is often seen on the inner surface of the aorta itself. By the extension of this eroding process, the wall of the sac itself is gradually involved, and perforation sooner or later ensues.

The best of perforation of an aneurysmal sac varies according to its size and relations to neighbouring organs. For this reason, we find that there is almost no possible course which the extravasated blood may not pursue. Hemorrhage takes place almost as often into muscular canals as into serous cavities, absorption with perforation of the body of the vertebral even, and subsequent hemorrhage into the spinal canal has been known to take place.

The effects of the pressure of the aneurysmal tumours upon adjacent organs and tissues are particularly worthy of attention inasmuch as by careful consideration of these an important step is taken in arriving at the diagnosis of the disease in question.

From the complicated relations, however, which every aneurysm of the aorta must have, it is evident that there can be no symptom or class of symptoms
upon which alone such absolute reliance could be placed, as to justify a diagnosis, and lead to an accurate demonstration of the nature of the disease. The truth of this statement is shown by the fact that every now and again, we meet with our patient affected with Aneurism, it may be of considerable size, able after the ordinary business of life and enjoyment, an average share of good health, whilst another, whose disease though limited has yet different relations to surrounding parts, is suffering from the most intensely agonizing pain that can well be conceived.

To prove satisfactorily the presence of an Aneurism, we must, to corroborate our opinion derived from a study of the Rational symptoms, call into our aid whatever can be derived from the physical signs presented by the case.

But, since physical signs are purely accidental, depending as they do, upon the size, form & situation of the Tumour, it is plain that even now & then there must
occurs cases, in which it is utterly impossible with our present means of diagnosis, to ascertain the existence of aneurisms. Since this is the case, and since it is unsatisfactory to give an unconnected statement of all the different symptoms or signs that may be present in a case of aneurism, it may be well to proceed to give the details of our own cases.

The first, is peculiarly interesting from the length of time the patient has been under my own observation. The gradual extension of the limits of the tumour, the slowly increasing hypertrophous condition of the left ventricle, & the good effects of proper regimen, are the chief points of interest.

"Aneurism of the upper portion of the Ascending Aorta; Dilatation of the Aorta at its origin; Hypertrophy & Displacement of the Heart."

"Anne Stewart, 1653. Hawker."

 Came under observation in the Royal Infirmary on the 11th July, 1850."
She is a woman of short stature, moderately robust, of a deep florid complexion; of not very temperate habits. Complains of palpitation and burning pains of chest suffered from acute rheumatism some years ago; shortly after her recovery she became subject to palpitation, gradually becoming more and more severe. A few months since she became sensible of a pulsation at the upper part of the chest. Suffers considerably from breathlessness on making any exertion. Has never had hemoptysis. Has no cough. Has occasionally complained of slight difficulty in digestion at least of solids. Has no headache. Takes food pretty well and while at rest enjoys comparatively comfort. Kind of chest is shortening, extends from left shoulder forwards to left part of chest. The chest has an unusual form, there is well-marked prominence of upper part of sternum, a visible pulsation extending to root of neck, between the sternum and sternal muscles. Pulsation is most distinct at upper part of sternum.
It extends as low as level of 3rd rib, and is communicated to either subclavian region, [the sternal half]. It is most strongly marked on the right side. Impulse of heart is visible, visible, lower than normal, of synchronous with the above mentioned pulsation. Impulse of apex is diffuse, most distinct, however, in 5\textsuperscript{th} intercostal space. Radial pulse is equal, slightly visible, synchronous with the heart beat. Percussion over upper sternal region induces pain. Percussion over upper sternal region is due to the extent of 4 inches transversely on the level of the 2\textsuperscript{nd} rib, diminishing to 2 1/2 inches on the level of 3\textsuperscript{rd}, passing gradually into the precordial dull space, which extends from right side of sternum nearly 4 inches leftwards, or from the 14\textsuperscript{th} left rib, nearly 5 inches downwards. The 1\textsuperscript{st} sound at apex, is altered, having a distant unmuffled tone. The 2\textsuperscript{nd} sound is doubtfully accompanied by a soft murmur. Over the most prominent
part of the lumbar there is communicable to the 6th a sense of strong impulse. The 1st sound, here, is muffled; the 2nd sound is prolonged having a hollow slightly musical tone developed. As the impulse is carried downwards to the heart, the distinctness of the 2nd sound becomes less.

After strict rest, occasional leaning, and opiates, she was so much better, that she was dismissed relieved on 15th September.

She was re-admitted Dec. 12th, having lay in this interval as very improved life. The leading changes are an increase of pointing of the lumbar, with slight discoloration of the integuments. Suffers more now than formerly from impeded breathing, or dyspnoea. Suffers much from darting pains of that by which sleep is disturbed.

Every now and then for the last 18 months she has returned to the hospital, being always so much relieved after rest so for
a month or so, as to be able to resume her occupation.

The following report of her condition was taken in January 1854, just before her dismissal, after she had rested in the hospital for a couple of months.

She feels comparatively easy. No dysphagia. No dyspnea. No starting from sleep. Appetite good. Bowels act regularly. Respires fully, without effort or pain. The sternal tumour is more extensively prominent, measuring transversely 4½ inches, filling up the hollow of the jejunum, & extending higher up behind the sternum. Mastoid on the left side than on the right. It extends downwards for 5 inches to level of 3rd Costal Cartilage. There is dulness on percussion over the tumour, transversely, at the level of the 1st intercostal space, measuring 5½ inches, including the prominence of the tumour. At level of 2nd space it is 3½ inches & diminishes downwards to level of 3rd space, 5½ inches from the upper margin.
of the murmur, as here. There is a space of prevent resonance having a vertical extent of 1/2 inches, & intervening between the dull space just described, the cardiac dulness. In this semi-resonant space, a part extending from left margin of sternum, leftwards, for 1/2 inch, is almost dull on percussion. Radial Pulse 80, regular, visible, slightly less than left. Cardiac impulse is forcible, & diffuse. Apeo beats in bɪ spaced. On the moment, there is perceptible, a double impulse the 1st synchronous with that of the Apeo Cordio, the 2nd immediately follows accompanied by a distinct thrill. At Apeo 1st sound is prolonged & muffled; the 2nd sound is converted into a prolonged hollow murmur. At lower boundary of the mediastinal dulness, both hearts sounds are free of murmur, the 2nd being intensified & having the hollow tone, to a small extent. As examination is made upward, the intensified 2nd sound becomes more hollow & somewhat musical.
This hollow sound of the 2nd sound is more marked on the right than on the left side of the tumour. Over the tumour the first sound has a faint murmuring prolongation, not well marked, audible along course of Carotids. Over external root of tumour, in subclavian regions the murmur of forced inspiration is well marked. On respiration there is a hoarseness & feebleness almost total.

The physical signs in this case prove satisfactorily the extension of the tumour, and the hypertrophy and displacement of the heart. Compression of the innominate artery must now exist to a considerable in degree, for only lately has any difference in the radial pulse been observed. The patient is now subject than formerly to attacks of dyspnea and dysphagia on any exertion, and this may be satisfactorily explained by the deeper seated relations of the tumour. The altered character of the respiratory sounds are
The sounds of both sides of the chest can be reasonably enough traced to a compressed or collapsed state of the upper lobes of the lungs. From the character of the sounds, it is probable that this is no valvular disease of the heart. The prolonged, muffled tone of the 1st sound, the forcible or diffuse impulse at the extent of cardiac dulness are indications of hypertrophy. It is difficult to explain the cause of the murmurs with the 2nd sound. Did it proceed from incompetence of the aortic valves, it is probable that the peculiar tone of the 2nd sound over the heart would not be developed. Neither does the pulse indicate aortic incompetence; it has not the bounding, jerking character almost invariably present in such cases. The visible pulse is so common in strong robust men, in whom the muscular substance of the heart is increased without any valvular disease, that from this symptom.
alone, we cannot infer the presence of aortic incompetence. The dulness on percussion which is now apparent over the origin of the aorta, below the root of the tumour, indicates the gradual superintention of aortic dilatation from the absence of dropsy, and astenop-"tasis & other symptoms of obstructed circulation, we infer that there is no dilatation of the heart, or at least that any dilatation has been counteracted by a compensating hypertrophy. The walls of the aneurismal sac, [which has caused absorption of the upper part of the sternum, & adjacent ends of the ribs], are firm & resistant, and probably lined by laminated concreta. A double impulse as a double sound are present in this Case of Aneurism. It Cannot be doubted, that the impulses & the sounds are both alike produced in the sac, so that they are not communicated from the Heart. The impulse of the tumour is perfectly
different from the cardiac impulse. The 2° sound becomes louder and more intensified, as the stethoscope is carried upwards from the base of the heart. The 1st impulse over the aortic sounds is expansile, or heaving; the 2° is sudden, short & abrupt, as if the blood were suddenly forcibly jerked upon the fingers. The cause of the 1st & 2° impulses, is the cause also of the 1st & 2° sounds. The blood having been expelled by the contraction of the left ventricle, passes on, filling, and expanding the aortic arch, and giving rise to the prolonged muffled first sound & the corresponding heavy impulse. The column of blood having reached the aorta, falls suddenly back, vibrating upon the aortic arch and arterial walls and aortic valves, and inducing the 2° impulse, or the intensified 2° sound. It is probable that this kind of the 2° sound would not be so highly developed, unless the aortic
values were competent, for, though the 2nd sound is due almost as much to the contact of the regurgitating column of blood against the arterial walls as to the aortic valves, it appears from the frequent absence of this hollow 2nd sound in thoracic aneurisms with insufficient aortic valves, that the contact of the blood with the walls of the aneurismal sac, & the dilated aorta is not in this case sufficient to account for the 2nd sound. The larger the aneurismal sac & the calibre of the aorta, the stronger will be the 2nd impulse, & the more intensified and hollow the 2nd sound. The diagnostic value of the intensified 2nd sound is therefore considerable, and may demonstrate the accuracy of a diagnosis which might otherwise be doubtful.

By itself, however, as in the case with any other sign, it cannot be relied upon, as diagnostic of aneurisms or dilatation of the aorta.
we find it develops though to a less degree than in the present instance.

in cases of anemia, where the action of the heart being excited, and the aorta in an irritab]le condition. the blood flows more rapidly & consequently falls back upon the arterial tissues, with greater force, than it does in health, we find it, also, in cases where the heart is considerably hypertrophied, an increase of power over the circulating fluid having been obtained in consequence of the great amount of muscular substance.

With the exception of occasional duties pains of chest, our patient of present enjoys complete comfort, notwithstanding the extent of the disease. The greatest improvement always took place in a short time in the case; chest tight, anodynes, occasional swelling to the lungs, having been protracted after 3 or 3 months exposure to all the necessities,
of the life of the poor and in need.

"Aneurism of the anterior portion of the Transverso Aorta, a upper part of the ascending, hemorrhage into left pleura."

Elizabeth Mrs. Fenton 47. 34. Servant. Admitted August 21st 1851.
in consequence of aneurism at an ulcer of leg. Could under our observation in the month of November. She had been ailing in the hand a good while before this made any complaint that attracted attention to the state of the chest. About the end of October she began to complain of pain, lancinating, pain of chest. November 1851. She now states that she had suffered from the pains, for several months now, that her sleep had been more or less disturbed, and that she had got thinner lately. Previously she had enjoyed good average good health. Never had

Aneurism nor Hæmoptysis. She now suffers from slight cough, without expectoration. She cannot rest upon the left side, whilst
speaking. Her breathing is slightly labored. No difficulty in swallowing fluids, but some in swallowing solids. Suffers severely from angina. The pain of chest extending from left upper part, to left side of neck & head, down left upper extremity. Complains of a feeling of constriction at lower part of chest and dull pain between shoulders. As she rests in bed, she is afraid of making the least movement; a sudden slight shock communicated to the bed gives rise to intense agony of pain. Cannot lie upon her back without increasing her sufferings, and without a feeling of constraint. Cough is without clanging, but slightly husky. Pulse is wanting in left wrist as well as in the brachial artery. In supra-sternal notch there is an abnormal pulsation. In the left subclavian region there is slight fulness, with visible diffuse pulsation and more marked impulse than in the cardiac space over region of heart.
of heart, & aorta, there is a spot
hardness on percussion, at upper
part of sternum & inner part of left
rib relief region, there is a space
dull on percussion, measuring 3 inches
indirectly, and connected with the
cardia dulness, at the 4th costal cart
ilage by dulness of one inch transverse
diameter. The Cardia dulness
measures 4½ inches vertically, from
4th cartilage, to 3½ inches transversely
from mesial line; the right border of
the Cardia dulness cannot be separated
from that of the liver; heart's apex is
undefined. In its usual situation,
heart's sounds are weak, types of murmur;
the 2nd sound is more distinct than
usual, with an occasional replications.
At 4th intercostal space
close to the sternum, the 2nd sound
is clear & intensified. As the stethos-
cope is carried upwards along the
course of the aorta, the 2nd sound
becomes gradually more intensified
and at upper left limit of subclavian
eclavion dulness assumes its great
est intensity, and a distinct hollow tone.
Here, the 1st sound acquires a faint
harsh prolongation. Behind, over
left sternal, there is dulness on
percussion, suppressed vocal resonance,
& feebleness of the respiration.
During the latter two months of her
life, but little attention took place
in the symptoms above enumerated.
She became more fretful & altered,
however, from the exhausting nature
of the pains. The use of opiates
gave her some relief at times. On
one occasion she was applied to a
pen crux between the shoulder's, but
without the smallest possible effect. On
the morning of the 28th Dec. 1851. I was
called to bed said in a fainting state;
she rallied somewhat after a little
wine, ammonia &c. but continued to
sink, and died about an hour after
the first fit of syncope came on.
Post mortem examination. Dec. 30th.

Body excessively pale. Chest very firm. A few dry areas present on pericardium. A small amount of serum in its cavity. Adhesions of both pleura in lateral regions. Left lung is compressed upwards, backwards, downwards in direction of adhesions. Blood in lower part of left pleura in large quantity, yielding a coagulum of 2 lbs. weight. Coagulum recent, dark-coloured, soft, perfectly like that of blood drawn from the veins of a healthy person.

The upper portion of the left, or left innominate, clavicular regions occupied by a calcified tumour in close relation with the Arch of the Aorta, and invested with a layer of cellular tissue from the mediastinum. The Aorta at its origin is not dilated, the valves are competent, and normal. The Heart appears a little larger than usual; weight ascertained: valves of right & left side normal.
The thymus is in close relation with the pericardium and its reflection to the left of the great vessels, and involves the greater part of the transverse aorta at the ascending aorta external to the pericardium. A size of thymus that of a small cocoon, its walls rather flaccid, and not at all destended. Dimensions, as near as could be estimated, are 4 inches transverse, 2 inches vertical, and 3 inches antero-posterior. The chief surface of the rib is eroded.

On removing the thoracic organs en masse, the aperitum of extravasated blood and blood-like matter, admitting an ordinary director, is surrounded by a few small frictions on pleura, was found near its anterior reflection from the bronchii of the upper lobe of the left lung. The walls of the sic inferiorly is bound down, and attached to the posterior surface of the upper lobe of the left lung.
The left phrenic nerve courses over
the anterior surface of the diaphragm,
firmly adherent to its external covering
and having its fibres, stretched and
slightly atrophied. The left phrenic
nerve is pushed a little to the left
side, but is normal. The recurrent
nervous passes around the arch of the
aorta along the inferior border of the
left lobe of the liver, its fibres are stretched
and slightly atrophied.

The abdominal organs are normal, with
the exception of the brain, which presents
on the superficial surface of the right
hemisphere, scattered patches of orange-
coloured softening. The digestion
The external coat of the esophagus
is very much thickened, and lined by a
membrane composed of several layers of
rather friable fibrous tissue, the innermost
of which presents the smooth shining aspect
of the internal membranes of the anterior
and becomes gradually continuous
with it at the mouth of the sac. The sac is much corrugated externally. The ridge surrounding the opening of the aorta into the sac is continued in front of the mouths of the carotid and innominate arteries. Subclavian artery of left side goes into the aorta about 3/4 of an inch beyond the opening of the aorta into the aneurismatic pouch.

The pulsation in the supra-sternal notch, the absence of the left radial pulse, the full percussion on the upper part of the sternum, and the intensified hollow sound of the 2nd sound, confirmed in this case the diagnosis which in the hands of an inexperienced practitioner only, might have proved perfectly accurate from the study merely of the peculiar appearance of the patient and the general symptoms under which she laboured. The Angina from
which our patient suffered so much, can be readily explained by the
relations of the tumor to the sympathetic & spinal nerves in
the upper part of the chest. It is
surprising, after examination of the
left recurrent laryngeal, to find
that though so much twisted out
of its course, its fibers stretched and
evidently compressed by the aneurism.
At some time, there was an affection
of the voice, and no laryngeal cough
or breathing. The orifices of the left
and eleventh artery opening as it did
beyond & behind the aneurism,
must have been greatly compressed
and fixed tied to the obstruction
of the circulation of the left arm.
The physical signs being so
similar to those observed in the
Case of "Stewart", (as regards their
rational) required but little further
notice. The hollow bone of the 2nd
over the tumor was well marked in
this instance, it is combined with the other signs, was of some value in leading to an accurate notion of the nature of the disease. The relation to the nature of the tumour showed satisfactorily that it was that bloody letchery was of so little service, in fact, contraindicated in this case. The enfeebled state of the patient's health, the weakness of the circulation, the extensive involvement of important vessels, the size, the form of the aneurysm, at first, and the condition of its walls, all show how inapplicable and empirical the practice of blood letting in some cases of aneurysm must undoubtedly prove. The walls of the aneurysm, were entirely composed of the thickened external coat, supported externally by a thin layer of cellular tissue; internally by a new internal lining, all remains of the internal
and middle coats having been completely obliterated. On the ridge which marked the seat of origin of the aneurism, the internal lining had made its appearance, and presented characters similar to those presented described in the first part of this paper. Minute points of atheromatous deposit were scattered throughout the interior of the sac, but no ulceration of the walls existed but at the seat of extravasation.

"Aneurism of the descending aorta; Haemorrhage into left Bronchus."

William Graham, 60. Porter.
Admitted August 25. Saturday, 1852.
Has been ill since the 4th. Present, with cough, attended with little or no difficulty of breathing until the 6th, when he was compelled to give up working. He never had any pain of chest, and this ascribes
his illness to having carried a heavy army load for a great distance last week. Cough has been accompanied with bloody expectoration from the commencement. He once brought up a couple of ounces of red blood by the mouth, but has otherwise enjoyed uninterrupted good health. Habits have not been desperate. he is a very robust man; full-blooded; neither emaciated nor corpulent. Shortly after his admission, I was called to him and found him labouring under intense dyspnoea; lips pale, livid; surface of body covered with large drops of sweat. Pulse tolerably full, regular, hurried. Has an expression of extreme anxiety. He was bled to 38° with the effect of inducing an approach to faintness; during venesection, perspiration pealed off his body in excessively large drops. After an hour, breathing became easy. Tidiness of lips had disappeared. Face became slightly flushed. Pulse 90 full. Still suffers from cough
occurring in paroxysms. Spasms consist of rhythmic visital movements, uniformly stained with blood. Chest expands pretty freely on both sides. Vocal thrills is perceptible on the left side of chest. Vocal resonence not altered in character, but weak on the left side. Percussion over left side almost absolutely dull both in front and behind; traces of pulmonic bascule only over upper lobe. On right side respiration sonorous & wheezing in character obscure. Heart's sounds and the sounds over left lung, respiratory murmurs much increased on left side though still audible. Coarse Crepitations accompanies inspiration in lower left lobe. Heart's sounds natural. No abnormal pulsation of great vessels. No venous pulsation. Siphonure Lija was prescribed in 3/0 doses, with a little Whiskey. In the evening, 5 grains of Peruvian, & 1 grains of squill powder were to be taken every 4 hours.
August 10. Slept well during the night. Continued well during the day. Took his meals heartily & made no complaint of any difficulty of swallowing.

At 9 p.m. breathing became suddenly difficult, and he was soon in a condition similar to that, shortly after admission. I was induced to bleed him again, since he was so very much relieved the day before this treatment. Not the smallest relief was experienced on this occasion. Dyspnoea continued to increase, and he died asphyxiated between 1 & 2 O'clock next morning.


Lividity of face & lips. Subcutaneous but of abdomen 3/4 of an inch in thickness. Left pleura contains between one & two pints of clear serum, with a few flakes of lymph. Right pleura contains a few ounces of fluid. Right lung voluminous & distended throughout. Left lung small & comparatively unedentuated. On removing the parts in
The neck of Thorex, en masse, a tumour was found pressing upon the bodies of the 3rd and 4th dorsal vertebrae, and connected with the descending aorta. The esophagus about its middle was in close neighborhood of tumour; it was, however, now adherent to the tumour of its mucous membrane was healthy. The left bronchus passed immediately over the thymic tumour. Its posterior wall is deficient for about an inch, and a prey firm coagulum of blood rests upon the bronchus at this point, it compressed its caliber to the extent of almost completely flattening. Both bronchi ict twelve contain blood of a considerable quantity of menus. Right lung is crepitant throughout, and on section here & there stained with blood. Left lung is non-crepitant; its tissue dense & resistant; in some parts stained of a violet colour, in others dotted with yellowish or aged points.
which are the smaller bronchi plugged up with inspissated mucus. Heart is strictly normal. Aorta presents on its internal surface numerous opaque patches of atheromatous deposit. Area of aorta is slightly dilated. The descending aorta presents two abnormal openings, one, an inch beyond the origin of the left subclavian artery, leading into an anomalous sac of the size of an orange; the other, 3/4 of an inch lower down, leads into a much smaller sac, which, arising from the right wall of the artery, passes inwards towards the left bronchus & esophagus, and opening by a wide communication into the formed as above mentioned. The two sacs are so closed together, as to appear to form one

The bodies of the 3rd & 4th dorsal vertebrae have been absorbed on their anterior surface by the upper sac, which, coming from the posterior wall of the vessel, projects upwards & backwards, adhering to the neighbouring periosteum. It to the inner & back part of the upper lobe of the left lung. Linear, appeared to
be in an early stage of cirrhosis. Other organs normal.

The symptoms under which our patient laboured, could not be explained otherwise than by the conjecture, which afterwards proved to be correct, that an Aneurism was pressing upon, and slowly bleeding into the left bronchus. The history of the case showed that there was no acute inflammation present. It was not the history of a pneumonia, or a pleurisy. From the general symptoms, it was evident that there was some obstruction to the respiration, which could not be referred either to the state of the lung or to the lungs. The habits and constitution of the patient, the purulent and mucous nature of the dyspnoea, the previous sudden expectoration of blood in considerable quantity, & the more recent hemoptysis, which was only sufficient to stain the spout, all went to disprove the case being either one of Pneumonia, Pleurisy, Perimisis or heart disease.
It must be comparatively rare to find, pneumonemaia preceded by indolent hemoptysis, to the same extent as in our patient. From his general appearance, his age, his robust habit, the history of his cough, the nature of the physical signs, the hemoptysis could not be referred to phthisis as its cause. Neither could it be due to heart disease, for had the hemoptysis proceeded from hypertrophy of the heart, merely, we should not necessarily look for cough, attended with bloody expectoration, as signs of an affection of the left side of the chest, and we should undoubtedly expect to find our patient complaining of palpitation, & measures over the region of the heart, with liability to epistaxis, or premonitory symptoms of cerebral hemorrhage, as fainting, animal, visual, sensorium, &c. Again, did the hemoptysis proceed from dilatation of the heart, or any valvular disease we should have had other symptoms, indicative of obstruction of the circulation, and remarkable for their chronic character, as trophic,
a congested & edematous condition of the lung, and an altered state of the heart sounds. From the entire absence of pain, throughout his whole illness, we could not refer his complaints to a pleuro-pneumonic state, which such a case as this, might be most apt to be confounded with. Though the physical signs proved the existence of effusion, and of an unhealthy condition of the left lung, it was plain that symptoms of such severity could not arise from so limited a disease. The effusion in the pleura assisted in veiling the condition of the lung. Had the lung been in a state of pneumonic consolidation, merely, we should have expected this respiratory murmurs to have been materially altered, or to have assumed a more or less tubular or blowing character. Should inflammation of the pleura, with a fluid and effusion into its cavity, might give rise to dyspnoea as great probably as our patient suffered from. But, in such a case, we should have complete absence of the inspiration on the
affected side with all the other symptoms of an acute inflammation. Neither was the amount of effusion found in the pleuræ, often death sufficient of itself to account for the well-marked feebleness of the respiration on the left side; nor was the partially condensed state of the lung, capable of giving rise to the alarming nature of the breathing, which was present. The greatest assistance in the diagnosis, in the present instance, was derived from the observation of the enfeebled state of the respiration of the left side of the chest.

As before remarked when speaking of the value of a particular sign, the mere fact of the respiration being more feeble on one side than on the other, would, by itself, be good for nothing, but when taken in combination with the other symptoms, its very great value and superiority over other physical signs in such a case, appears indubitably after examining the foundation upon which the diagnosis of the numerous recorded cases of aneurisms of the descending aorta has rested. It is chiefly, however, from this
negative symptoms that we are to look to in attempting to arrive at the diagnosis of such cases.

As to the treatment it cannot be doubted that bloodletting was properly employed in this instance. Our patient bore the bleeding so well, and experienced such wonderful relief, that we cannot but believe that it was indicated.

The general appearance of the patient, the lassitude of the eyes, the intense perspiration, the moderately full and firm pulse, and the short period of his illness were indications sufficient almost without any further knowledge of the nature of the disease for the employment of the remedy. Just as we bleed largely a patient labouring under an acute inflammation of any part of the chest, who is suffering from violent dyspnea, and presents an appearance similar to that of our patient we feel ourselves bound in cases of conditions such as this, to resort to bloodletting, since we are convinced that by such treatment, the distress may be so much relieved.
the patient rescued from such imminent danger. If there is any confidence at all to be placed in the treatment of aneurisms, according to the method of Valsalva, we should be inclined to suppose that such a treatment might have in this instance proved of some service. Had the situation of the aneurism been somewhat different, it not involved the left bronchus to the same extent, the conditions for the formation of fibrous layers of coagulum, and the subsequent obliteration of the aneurismal sac, appeared to exist, from the manner in which the sac opened into the aorta, from the firmness of the layers of coagulum in the sac, from the apparently healthy condition of the blood, or from the robust habit of the patient. But this may be doubtful when we look to the extensive atheromatous disease of the aorta. On examination with the microscope both internal and middle coats were found infiltrated with fatty granules and the fibres broken up in several pieces. The coagula in the aneurismal
sac, which were near its mouth, were soft & pulpy & of a uniformly red colour, becoming gradually pale & firmer as the external coat was approached. The thickened external coat of wall of the sac, was lined by a thin membrane, having a smooth somewhat shining aspect, & continuous with the lining membrane of the aorta at the seat of erosion of the internal or middle coats which were prolonged into the walls of the sac for about the 1/8 part of inch.

The following case which I am afraid I will not have time to relate is peculiarly interesting, from the great amount of instruction it is calculated to convey. Though in the habit of seeing this patient two or three times daily for 2 months together, and though the symptoms under which he laboured were daily brought under our careless observation, the suspicion that an Aneurism was the cause of all his sufferings, was never yet once entertained.
My notes of the case are consequently imperfect, having been drawn up only two days before the death of the patient.

Aneurysm of the posterior wall of the transverse portion of the aorta; laryngeal obstruction; death.

Thomas O'Brien, aged 46, came first under observation April 24, 1851. He is fair complexioned, strong, robust and of good muscular development. He had become subject to cough, attended with slight difficulty, two months previously. Latterly the difficulty of breathing was often free from any uneasiness for hours together. Had always more or less cough. However, a feeling of indescribable uneasiness and oppression at the lower part of both sides of the chest. Respiration was always more or less laboured, and noisy. Though not distinctly stridulous. Voice always husky and produced with effort. Whilst speaking he had continually to throw his head backwards suddenly, after which he appeared to speak with greater freedom for a while.
From the first commencement of his illness, he could never sleep without his head being raised. Latterly he was compelled to sleep in the sitting posture. He had never any difficulty of swallowing. Cough was attended with frothy mucus, expectoration insinually tinged with streaks of blood, but never distinctly bloody or transient. Never brought up blood in any quantity. Never complained of any pain between the shoulders or shooting pains of chest or arms. When he first came under observation, owing to the predominance of the cough with expectoration & oppression of the chest, the lungs were looked upon as the seat of the disease. Repeated examination of the chest could not discover anything to account for the severe nature of the symptoms. No murmur with heart's sounds. No abnormal pulsation over great vessels could ever be detected. The respiratory sounds throughout the chest were remarkable for their feebleness, though perfectly natural, & symmetrical & free from any bowing or tubularity.
Occasionally after an exacerbation of cough, sputum of viscid and thick nature was audible throughout the chest, with very coarse expectoration over the lower parts of the lungs behind. The urgency of the cough disappeared considerably after coughing between the shoulders, or after the grounds had become hosed from the use of small doses of Calomel and Opium. Blisters were applied repeatedly to the chest, without any perceptible advantage. I was in the habit of taking whilst in hospital an expectorant mixture with Elixir and Morphine. After the severity of the cough had been somewhat subdued, the laryngeal symptoms, from their gradually increasing severity, attracted the chief attention. He now repeatedly complained of pain in the lower part of the trachea, or the upper part of the sternum. Suffered also from pain occasionally over the lung. No abnormal appearance of epiglottis or larynx could ever be detected. He began to suffer, now, from difficult and noisy laryngeal
breathing, occurring every 2 or 3 days, or sometimes oftener, 
& lasting for a quarter of an hour or so. During the paroxysm, 
expiration was always perfectly natural, 
Inspiration being, laborious, prolonged, 
breath & noisy. Voice continued to sound 
the same huskiness as on admission. 
Was repeatedly breathed over the lower 
part of the trachea & the larynx. Motors 
were frequently applied to the sides of 
the larynx & the memory of it moved. 
Breathing was invariably relieved after 
breathing, & in invariably became more 
oisy & difficult after the application 
of the mixture of Silver solution to the 
larynx by means of a sponge. Administration of Chlorine was followed by a similar 
result. Though our patient lost flesh considerably he was so far relieved, that 
he was anxious to try how he would get 
on at home. He was accordingly dismissed 
on the 22d May 1857

Returned to hospital on the 50th, 
Laboring under a paroxysm of dyspnea.
more alarming than he had ever suffered from in the hospital. He now stated that since his dismissal the paroxysm of difficult breathing had become more frequent, more severe, lasting for a much longer time than they had done previously. Dyspnea was so great as to threaten suffocation. Even he attempted to rest his head on the pillow. Inspiration, prolonged, labored, distinctly stridulous. Respiration perfectly natural, performed without noise. Expulsion of concretions, however, face flushed, voice husky as before. No pain over larynx. Epistaxis ceased.

In the course of half an hour, the paroxysm had subsided to some extent. On examination of the chest percussion revealed no abnormal resonance in any sound. Breath generally feeble, but natural and unobstructed. Communicated larvalgal respiration. Bronchial respiration though not abundant were heard and there audible throughout the chest. Heart sounds...
No abnormal pulsation was noticed at root of neck. Pulse natural. A blister was applied to the nape of the neck, to help a discharge of Freer's fluid every 2 hours.

He continued in much the same condition until the 30th of June. Paroxysms of extremely difficult breathing having occurred 5 or 4 times daily, and lasting from 20 to 30 minutes. Treatment was not altered. Repeated examination of the chest disclosed nothing. I was instructed by the physician to perform Freer's test, should it be found necessary. On the night of the 30th June he suffered from a long continued paroxysm of alarming severity. On the morning of the 1st July between 7 or 8 A.M. I was called to him and found him walking up and down the ward supported by a man on either side, friction over the front of the chest being at the same time kept up, from the belief it seemed to afford. He appeared to be on the point of suffocation.
chest could not expand freely. Lips were
lived. The extremities cold, surface of body
covered with clammy perspiration.

Extreme anxiety of Consternation. According
to orders, I insisted upon the performance of
the operation. The patient however, would
not consent. He slowly recovered from
this attack. He had another paroxysm
of less severity in the afternoon. At 7/8 P.M.
the paroxysm returned. This attack
continued as long, that the poor man
became exhausted, and consented to the
performance of the operation. The tube
was introduced an hour after the
first appearance of dyspnoea. Face was
pale; lips livid; cold sweats. Veins
of neck turgid with blood, and during
the operation a considerable quantity of
blood entered the trachea, but was
immediately expelled. Notwithstanding
the introduction of the tube, and the
assiduous performance of artificial
respiration, there was no appearance
of recovery. Lips & face became ashen.
lived. Eyes became fixed. Respiration became slower & performed at longer and longer intervals, and she died a quarter of an hour after the tube had been introduced.

Post mortem examination. 6th July. On opening the chest adhesions were found at apex of right lung corresponding to a few encysted tuberculous masses. Anterior edges of lungs slightly emphysematous; lower lobes slightly collapsed posteriorly. Pleurae membrane of Brunnchi slightly congested, v. cerebro with tolerably numerous, minima lienii with heart weiging 12 lb. Veins competent. On the aortic valves, there were one or two very minute granulations and a few similar ones on the inner membrane of the vessel nearly origin. Inner membrane of aorta was throughout thickened & uneven, with here & there very minute points of atheromatous deposit. No dilatation of the aorta was present but the innominate, and right & left subclavian & carotid vessels were slightly
expanded at their origins. At the back part of the arch, half an inch below
a between the origin of the submucous
t e left caroid, was an oval opening
below it between the for the most part
closed by a mass of firm coagulum
which passed into the aortic wall.
The aneurysm was the
size of a walnut, situated between
the aorta and the trachea, adherent to
the pericardium of some of the
tracheal rings. The sac contained
laminated, decolorized coagulum with
a little blood. The left recurrent
nerve emerging from below the aorta
passed immediately to the left of the sac
and behind it, being bent over
it, & in the immediate neighbourhood
of some thirteenth cellular tissue
or one or two indurated lymphatic
glands. The pharyngeal nerves had their
normal relations. Tumors & epiglottis
normal; tonsils follicles more
prominent than usual, giving the
mucous membrane a slightly granular appearance in the neighbourhood of the epiglottoid cartilages. Mucous membrane of larynx & upper fourth of trachea normal. Below, this is considerably congested. A circled opening was found on each & a marked above the bifurcation on the left side, admitting readily a crow quill into the aneurismal sac. The abdominal viscera were congested but normal. Abdominal aorta presented a similar appearance to that of the thoracic.

Though this case is unsatisfactorily recorded because carelessly observed, it is evident that all along the nature of the disease has been mistaken, being at first looked upon as a case of uncompli-
cated bronchitis and afterwards as one of chronic laryngitis. We maintain however that no one but a skilful physician of long & extensive experience is capable of being correct in the diagnosis of such a case as this. Given such a
physicians could only conjecture that such was the nature of the case, for there were no physical signs to prove, or to demonstrate the accuracy of his opinions derived from a study of the general symptoms. It is only after long experience that one can ever hope to distinguish during life, aneurisms at the base part of the arch of the aorta, simulating lymphoid disease, or without physical signs from primary affections of the lungs itself. Still, on looking back on this case, remembering that the diagnosis of thoracic aneurism, is often founded entirely upon negative symptoms, we cannot but think that more accurate observation might have led to a correct idea of the nature of the disease. The absence of physical signs to denote lesion of any organ of the chest, that could account for the severity of the symptoms; the chronic, paroxysmal nature, or the gradually increasing predominance of the laryngeal symptoms, which were little if at all
under the influence of remedies, & the most active treatment that could be devised, were all circumstances calculated to excite suspicion. Hemorrhages, too, scanty & long continued, occurring in such circumstances & traceable to no disease of the heart or lungs, was also a symptom of a very suspicious nature. Though hemorhages not to be distinguished from what was present in this case occur frequently from ulcerations of the larynx, observation of the character of the inspiration, where there is primary disease of the larynx might afford material assistance. In chronic ulceration of the larynx, the inspiration is short, soft & natural; and attended with nothing whilst the expiration is prolonged, harsh & raucous. Where the affection of the larynx is secondary, and traceable to an irritation of its nerves, whether by an aneurism, a mediastinal tumour, an enlarged gland, or a foreign
body firmly impacted in the esophagus.

In expiration it is natural, without noise though it may be slightly prolonged whilst the inspiration is distinctly audible in its character prolonged & harsh, & performed with effort.

We have seen 2 or 3 cases, since the present occurred, where physicians the most accomplished in physical diagnosis, were unable from the physical signs to demonstrate the presence of anything abnormal at the root of the neck, whither dissection afterwards shewed in one case, an aneurysm of the back part of the arch of the aorta, as in the present instance, and in another, aneurysm of the innominate artery, though in both cases from the general symptoms an accurate diagnosis was arrived at.

We believe, therefore, that in one patient it would have been impossible to have ascertained the existence of aneurysm from the physical signs, if any there were.
As to the treatment of the case, it is plain, that it was in part beneficial and in part prejudicial. The relief that followed leading to the fever which was only restored to in the evening when difficult breathing interfered with sleep, induced its frequent repetition. Not the least benefit, however, was ever seen in his case to follow the application of blisters. But the application of the nitrate of silver solution to the larynx, was beyond description prejudicial. Though only applied on three or four occasions, such alarming dyspnoea set in, as should effectually prevent us from recommending such practice in similar cases. This treatment so doubtfully beneficial in primary laryngeal disease, seems to aggravate the disease itself, when the disease is approached in the least degree. We have had several cases where this treatment has been put
in force, to the great relief of the
patient's life. The patient, in particular,
who was under our charge about
15 months ago, was subject to
attacks of spasmodic laryngeal
disorder, was so nearly dead as possible
after the swallowing of the larynx
with the solution. But the point
that deserves the most particular
attention in this case, is the propriety
of the inpropriety of the performance
of tracheotomy.

Where the Glottis alone is the
seat of obstruction to the respiration,
we believe that in such a case,
tracheotomy is undoubtedly indicated.
In our patient from the appearance
of allations of the left recurrent
laryngeal, we cannot doubt that a
considerable share of the laryngeal
disorder arose from the pressure of
the aneurismal case upon the left
recurrent. It must be very difficult,
however, to check sure, that in this
case, the left recurrent was the only nerve irritated. The most careful anatomical dissection would be required to ascertain, whether or not, the sympathetic nerves were not likewise involved as it would be, still, a difficult matter to decide how much of the laryngeal distress arose from irritation of the recurrent, how much from irritation of the sympathetic, or how much also from direct pressure upon the trachea itself. Had the left recurrent, in this case, been the only nerve involved, tracheotomy would undoubtedly have relieved the breathing for however short a time. As it was, not the smallest benefit followed the introduction of the tube. It may be, that the patient was too nearly asphyxiated to be much benefited before the tube was intruced; but we see cases of syphilitic laryngitis, in which tracheotomy is allowed by all to be right & proper,
 Recover so frequently after the operation, when the vital powers are brought as low, and where speedy dissolution appears as inevitable as it did, in our patient, that we cannot but think there must have been some other obstacle, to the ejection of the blood, than the spasmodic closure of the spout, and probably offered by a tonic contraction of all the bronchial tubes. We have noticed of three other cases of Aneurism with laryngeal obstruction in which tracheotomy was performed with the same result as in the present instance; the patients all died in our hands, when it was evident that efforts to have recovered, had the seat of obstruction been confined to the larynx. Here is proved that in these cases, the sympathetic was irritated in addition to the recurrent laryngeal. We should have a clue to the cause of the deficient expansion of the chest, amounting to
contraction, which was observed in all of them. From the extensive distribution of the sympathetic nerve, or from its being made up of two different sets of fibres, having different functions, we can understand how by a sympathetic or reflex action, any tumour or foreign body at the root of the neck may irritate certain twigs of the sympathetic nerve, supplying the larynx, and give rise to such a contraction of its muscular fibres, as would be communicated to the involuntary muscular fibres of the walls of the trachea narrowing their caliber and inducing a state of tonic contraction where the existence of aneurism is clearly proved, it must be dangerous practised indeed for our own credit, to recommend the performance of the highly dangerous operation of tracheotomy. Where the case is doubtful, where it is impossible to satisfy our minds that an aneurism
is present, we ought to weigh carefully
the probabilities of the patient dying
during the operation, with the chance
of prolonging life for a few hours.

Never having had the least thought
of stopping short in the middle of my
work, I find that, now, I am reduced
unnecessarily to that necessity. Intended
to have pursued the subject of Tumoric
Aneurism much further, & to have
entered upon the important subject
of Dilation of the Corrug. At least
shown by records of cases, how
guarded our prognostic ought to be, in
a case of Disease of the Heart, where there
is the smallest evidences of aortic
Dilationation, even to a slight degree.

Henry Thome.

31st March, 1852.