CONGENITAL ADENOMATOUS BRONCHOCELE.

By JOHN HEWETSON, M.D., F.R.C.S.,

Assistant Obstetric Officer, General Hospital, Birmingham.

IN the month of March of the present year, a foetus was sent by Dr. J. F. Harvey to the Pathological Museum of this University, exhibiting a very large cervical tumour which presented pathological features of great interest, and, I think, worthy of publication. The following history has been sent to me by Dr. Harvey, the whole of which, except the part bearing upon family record, I will reproduce in his own words:—

“After a very thorough investigation, going back several generations, I could find no trace of congenital abnormality or thyroid enlargement, on either the maternal or the paternal side of the family. There was no history of new growth to be found in any member, except one isolated case of cancer in a great-grandmother. E.B., aged 26, the wife of a working-man, was the mother of the foetus under discussion.

“Personal history. At the age of twenty she suffered from renal calculus, for which she underwent an operation. She was married three and a half years ago; her first child was still-born at 7½ months, her labour being prematurely induced by a fall. Her second child was born at full term and is now a healthy boy of 18 months. Her third is the specimen under consideration, and was born between the 7th and 8th months of its intra-uterine life. During this third pregnancy, the mother took no drugs except an occasional aperient. When about 4½ months gone in this pregnancy, she was standing one day at the bottom of the terrace where she lives, and saw a young man pass who had a very large lump (as big as a basin) on the left side of his face and neck. It made a great impression upon her for a time and set her thinking; for example she wondered what his feelings were amongst friends or strangers, and pondered over what could be the cause of it, etc. The sight, however, did not cause her fear or disgust, and she did not think of the sight in association with her own condition in any way. The sight of the child to which she gave birth did not, at first bring this circumstance back to her memory, and it was only on being reminded of the incident by a relative that she remembered it.

“History of labour. Pains commenced in her back on Wednesday

night (March 18th, 1903). They gradually increased in severity during Thursday, Friday, and Saturday. On Sunday the character of her pains altered; they became felt more in her stomach and were of a bearing-down character. During all this time she had little or no sleep. The pain continued until Tuesday, upon which day it became still more severe. She was examined by a midwife, who described them as colic pains, and expressed the opinion that she would probably go to full term. On the afternoon of Tuesday (March 24th) the pains became so unbearable that the patient came over to my surgery, which is not a hundred yards from her home. She was accompanied by a neighbour; this would be about 4 p.m. I could see that she was suffering from severe pain, and, upon vaginal examination I found her to be in strong labour. The membranes were tense and bulged during a pain. The os was dilated to about the size of a crown piece. About 6-30 p.m. on the same evening I saw her again at her own house, the os was then fully dilated, a vertex could with difficulty be felt. I ruptured the membranes; a quantity of liquor amnii escaped with much force, nearly two chamberfuls were collected, and a quantity was lost on the bed and floor. The head descended quickly into the pelvis and on to the perineum in the L.O.A. position. After about half-a-dozen strong pains, without any further advance of the head, I applied short forceps and delivered during the three following pains. Moderately strong traction was found necessary to deliver the head, although the perineum and soft parts were quite dilatable. The placenta separated in a few minutes and was easily expressed. There was nothing abnormal noticed in its appearance or consistence; hæmorrhage was very slight.

"The child, a male, cried lustily on delivery. A large tri-lobed cystic tumour was seen in the neck, the left lobe being much the largest, and extending from the angle of the jaw to the clavicle and causing extension of the head. The child lived two hours. The nurse, who was present when it died, stated that it suddenly became convulsed and then expired.

"The progress of the mother was uneventful and satisfactory in every way."

The foetus is a male, weighing 5lbs., of about $7\frac{1}{2}$ months, well nourished, and showing no apparent abnormality other than a large cervical tumour. (See photograph, No. 1).

The cervical tumour is approximately the size of a large Jaffa orange, being $4\frac{1}{2}$ inches transversely and 3 inches vertically. Quite two-thirds of the bulk of the tumour are situated on the left side of

FIG. 1.—The fœtus prior to dissection.

FIG. 2.—The tumour removed from the body, anterior aspect, showing tip of tongue above trachea and oesophagus below.

FIG. 3.—Posterior aspect of tumour, showing the healthy right thyroid lobe claspings the trachea, the lateral curvatures in trachea and oesophagus, also glottis and back of tongue.

the neck. There is no well-marked isthmus to the two lateral lobes. Its upper margin on the left side reaches as high as the external auditory meatus and overlaps a considerable part of the left lower jaw, whereas, on the right side, the upper margin of the tumour is limited by the inferior margin of the mandible. The inferior margin of the tumour on the left side hangs over the front of the thorax as low as the third intercostal space. Its left lateral margin is bounded by a line drawn vertically upwards through the middle of the left shoulder joint. Its right lateral margin is bounded by a line drawn from the right angle of the jaw to the middle of the right clavicle. The surface of the tumour is somewhat irregular, due to evident lobulation. Its consistence is generally soft and fluctuating, with hard masses scattered irregularly between the fluctuating areas.

The tumour is intimately associated with the trachea, but can be moved freely over the lower jaw, clavicle, sternum and ribs. A No. 12 urethral bougie passes quite readily down the œsophagus.

Relations and Character after dissection. The tumour was found to be perfectly encapsuled, and shelled out readily from all the structures of the neck, with the exception of the larynx, trachea and œsophagus. It was subjacent to the sterno-mastoid and sub-hyoidean muscles, which were stretched to thin muscular bands over it. It completely encircled the trachea. The thymus gland, which was normal in size and structure was attached by loose fibrous tissue to the posterior-inferior aspect of the mass. The parotid and sub-maxillary glands were very small but apparently normal. The carotid arteries and jugular veins were displaced outwards and backwards, more especially on the left side. The vagi and sympathetic nerves were situated behind the tumour. The œsophagus was situated on the posterior aspect of the tumour and closely adherent to it. (See photograph No. 3). It showed a lateral curvature with its convexity to the left, and an antero-posterior curvature with its convexity backwards. Beyond an antero-posterior flattening, the œsophagus showed no diminution of its lumen.

The trachea was intimately adherent to the posterior surface of the tumour. It showed considerable lateral compression, and the lumen of the tube was diminished to about one-half its normal capacity. A well-marked antero-posterior curvature of the trachea with its convexity backwards, and a lateral curvature with its convexity to the left, also existed. Even when removed from the body, the trachea was all but encircled between the left half of the mass and the tip of the right lobe of the thyroid gland. There were no

congenital fistulæ visible in the walls of the pharynx or œsophagus, and there was no indication of a persistent thyro-glossal duct.

The fœtal heart was enormously distended with blood, especially on the right side. A large patent ductus arteriosus still existed. The lungs were universally dark in colour, and markedly congested, very similar to the condition seen as a result of asphyxia.

The tumour. The mass, when removed from the neck, together with the tongue, larynx, trachea, and œsophagus weighed 220 grammes. It consisted of three chief masses, one entirely on the left side, and by far the largest, a second, which would correspond to the pyramid of the thyroid gland and slightly to the left of the middle line, and a third, situated in front and to the right of the trachea. (See photograph No. 2.) On the extreme right of the mass, is a small portion of apparently healthy thyroid tissue representing a part or the whole of the right thyroid lobe.

On section, the tumour is composed mainly of cysts full of clear mucin-like substance. The cysts vary in size from a pin's head to a tangerine orange. In making the section, there was considerable resistance to the knife at several points, suggestive of cartiliginous or calcareous masses. The remaining part of the tumour is solid, and gives the ordinary appearance of soft adenomatous tissue. The capsule of the entire mass is richly supplied with plexuses of veins. Inside the general capsule, there are several masses of new growth which have separate capsules of their own. No colloid matter, or any substance resembling derm can be detected in the cut surface. Sections of the right lobe of the thyroid gland give the ordinary naked eye appearance of fœtal thyroid tissue. This right lobe is intimately adherent to the general mass of the tumour.

Microscopical Examination. Pieces of all parts of the tumour were prepared for examination. Sections of each piece were stained by two methods—(1) hæmatin and eosin, (2) hæmatin and Van Gieson's stain.

Low Power. The capsule consists of loose fibrous tissue in the meshes of which are numerous thin-walled veins and blood sinuses. From the deeper aspect of the capsule slender bands of similar fibrous tissue run into the substance of the tumour, separating the larger glandular spaces from each other. The tumour substance can be broadly divided into a connective tissue element and an epithelial element. The former, which presents a great variety of tissue, is almost certainly mesoblastic in origin, whereas the latter is, in all probability, hypoblastic.

The connective tissue element of the tumour consists of (a) cells, and (b) formed tissue. (a) The types of cells that strike the microscopist are round cells, spindle cells, and stellate cells. So much is this the case that in large areas composed entirely of cells and devoid of formed tissue or acini one sees the exact appearance given by lymphoid tissue, spindle-celled sarcoma, and myxoma respectively. (b) Of the formed tissue elements there are

FIG. 4.—Mag. No. 6 ocular, objective $\frac{3}{8}$ in. Zeiss, showing cellular stroma, mass of cartilage, acini of No. 1 variety showing clear mucus or mucus and round cells, acinus showing columnar cells to right.

FIG. 5.—Mag. No. 6 ocular, $\frac{1}{4}$ th in. objective, showing cellular stroma, round cells and spindle cells, mixed; small acinus to right of field.

(1) small masses of hyaline cartilage, rounded or elongated in shape, dense in structure, and staining deeply, though somewhat irregularly, with hæmatin; (2) small, moderately hard calcareous masses are strewn about the tumour, especially towards its centre. These, on being decalcified, consist of a uniformly dense matrix, staining bright red with Van Gieson's stain, and containing spaces in which are spindle or stellate cells; (3) long, loosely-packed bundles of non-striped muscle are strewn about the section; sometimes these are cut transversely.

The Acinous Portion. The acini vary in size from that of a Lieberkühn's gland to cysts the size of a tangerine orange. Many of the acini are apparently empty, whilst others contain a homogenous substance, and a third group contain a homogenous substance and cellular element. (See photo-micrograph No. 4.) A considerable number of the larger acini show beautiful intra-cystic growths. To avoid repetition I will describe the exact character of the epithelium lining these alveoli under a high power magnification.

The tumour, as seen by this power, is moderately vascular, being supplied with thin-walled vessels scattered irregularly throughout its substance. There is, in certain areas, a considerable amount of recent hæmorrhage into both acini and stroma. Occasional areas of brown pigmentation suggest the remains of old hæmorrhages.

High Power. There is little or nothing to add concerning the capsule or delicate fibrous framework passing from it into the interior of the tumour. The *connective tissue portion* of the tumour merits further description. The cellular groundwork forms the bulk of the solid part of the tumour. It consists of large areas of the following cells, sometimes as pure types, in others as mixed types of cells, as seen in photo-micrograph No. 5—(1) small round cells, with a well-defined, round, deeply-staining nucleus; the protoplasm of these cells stains moderately deeply. Not uncommonly these small round cells are arranged in isolated, rounded masses, exactly like lymph follicles; (2) spindle cells, short and plump, with an oval nucleus, and protoplasm that stains imperfectly; (3) stellate cells, with an oval or spherical nucleus, and protoplasm that is all but transparent. These cells are loosely packed, and the whole effect is typical of myxomatous tissue. The predominating type of cell is the spindle cell.

The cartilaginous masses show their most mature part in the centre. The margins fade away into the cellular elements of the stroma. Very minute masses of cartilage are visible only to the high power, in the midst of the cellular groundwork. None of the cartilaginous masses are surrounded by well-formed fibrous tissue. These facts lead me to think that these cartilaginous nodules are being gradually built up from the afore-mentioned cells of the stroma. On examining the larger masses of cartilage it can be seen that towards their centre the cell spaces are more capacious, and contain several cells in their interior. Further, the hyaline matrix, towards the centre, is much denser than at the periphery. These denser areas stain more deeply, and not infrequently occur in irregular masses. The appearance thus presented closely resembles the preparatory stage to ossification.

The calcareous masses are never large, and always form irregular spicules. Their structure and staining properties, as already described, lead me to the view that they are in reality true ossifications rather than calcareous degenerations.

The muscular tissue consists of long, non-striped fibres running in wavy bundles, possessing long, deeply-staining nuclei. Their protoplasm takes

on the characteristic brown stain with Van Gieson, and their clearly cut margins are well seen under the high power. (See photo-micrograph No. 6.) Sometimes the muscle fibres run singly, or have a branching character. Not infrequently they are cut transversely, presenting circumscribed, loosely packed bundles. They are generally seen in the vicinity of cartilaginous masses.

The acini are of three varieties—(1) the greater number are lined with a single layer of cubical epithelium, the nuclei and protoplasm of which stain very readily. Most of the larger cysts are lined with this epithelium. It is the type of epithelium that is usually seen in ordinary adenomatous bronchoceles of the adult. (See photo-micrograph No. 4.) Intra-cystic growths, covered with similar cubical cells, are occasionally seen in these acini. The contents of this type of acinus are either clear mucous, or mucous containing very large rounded cells with a deeply-staining central nucleus, but with faintly-staining protoplasm. (2) The second type of acinus is lined with beautiful columnar epithelium. The nuclei of these cells are situated at their attached end, and stain deeply, and are surrounded by a small amount of protoplasm, that also stains readily. The greater part of the cell, however, as is well seen in the photo-micrograph, is semi-transparent, and stains but faintly. These large columnar or goblet-shaped cells appear to possess open mouths similar to the chalice cells of the large intestine. Many alveoli are lined in part with columnar cells, and in part with cubical cells, and there is good reason to think that the clear part of the goblet cell may be shed, leaving the basal part to form a permanent cubical epithelium, as is seen in photo-micrograph No. 7. Nearly all of these columnar-celled acini contain beautiful intra-cystic growths covered with the same type of epithelium. The contents of this second variety of acini are similar to those of No. 1 variety. (3) The third type of acini, and by far the least numerous, is lined with stratified epithelium. Usually it is a transitional epithelium, columnar at the basement membrane, becoming more squamous towards the lumen. Less frequently it is stratified columnar epithelium entirely. Acini of this third type are generally small, and in many their lumen is all but occluded. All these cells, whether columnar or squamous, contain well-defined nuclei and protoplasm that stain readily. These acini contain neither intra-cystic growths nor any other content.

Subjacent to the general capsule of the tumour a considerable number of normal foetal thyroid acini are to be found; they are identical to those found in the right lobe, which will now be described.

Sections through the tip of the right lobe of the thyroid gland have the following microscopical characters:—

Low Power. The acini are small, irregular in shape, and apparently lined with one or more layers of epithelium. Interspersed among the acini are thin-walled blood-vessels. (See photo-micrograph No. 8.)

High Power. The acini contain one or more layers of rounded or spheroidal cells, containing well-defined nuclei and protoplasm that stain fairly readily. The epithelium is not arranged regularly around the alveolus, as in adult thyroid glands, but irregularly in the vicinity of the periphery of the alveolus. Sometimes alveoli are completely filled by these cells. No colloid matter is visible anywhere. The microscopical appearance is that of normal foetal thyroid tissue of about a seven or seven and a half months foetus.

Remarks. There can be no doubt that this is an encapsuled

FIG. 6.—Mag. No. 6 ocular, $\frac{1}{8}$ th objective Zeiss with camera extension, showing spindle cells of stroma and a bundle of non-striped muscle running across the field.

FIG. 7.—Mag. No. 6 ocular, $\frac{1}{4}$ th objective with camera extension, showing part of No. 5 photo-micrograph, showing both columnar cells and cubical cells lining the same acinus, also intracystic growths.

FIG. 8.—Mag. No. 8 ocular, $\frac{3}{4}$ in. objective Zeiss, showing section of right lobe of thyroid, which is that of healthy foetal thyroid tissue of $7\frac{1}{2}$ months.

tumour occupying the entire left lobe and isthmus of the thyroid gland, and that it is a variety of congenital bronchocele. I need not enter into a description of the different types of congenital goitre, especially as I have already touched upon this matter in a communication to the *British Medical Journal*, of March 21st, 1903, in which I described a vascular foetal goitre. The specimen under present discussion, bears a very striking and interesting contrast to my specimen described in March.

I would just like to record here a new fact concerning the mother of the goitrous foetus described in March. Quite recently, she has given birth to another premature child, at about the eighth month. During this last pregnancy, she took potassium iodide and mercury fairly continuously. No potassium chlorate was administered. The child was not goitrous, but the placenta was very markedly diseased. It is thus worthy of note that, of all her many premature children, the only goitrous child was the one associated with the administration of potassium chlorate during her pregnancy.

The goitre I have just described is not likely to follow the administration of any drug. The impression made upon the mind of the mother by the sight of a large tumour on the left side of the neck of a passing stranger, could not, at mid term, have any bearing upon the causation of this ante-natal growth. At that time the thyroid gland had been so long separated from the primitive alimentary canal, that any such impression would not be likely to affect the genetic function of the cells which, normally, form that gland. I, however, think it wise to maintain a perfectly open mind upon this question of tumour formations, especially angiomas, following strong impressions during pregnancy. As I can only speak from hearsay evidence, of a doubtful nature, I would welcome the genuine experience of medical men who have been brought into contact with cases of a *bona fide* character.

The labour, as described by Dr. Harvey, was a prolonged one, for several reasons. The condition of hydramnios, as well as the tendency to extension of the head, offered a considerable obstacle to the proper engagement of the head in the brim. The hydramnios, further, rendered the uterine contraction not only less strong, but also less effective, than it would otherwise have been. The arrest of the head in the pelvis is explained, partly by the imperfect degree of flexion, and partly by the mechanical obstruction offered to the passage of the large cervical tumour by the upper straits of the bony pelvis. The cause of the child's death was, in all probability, asphyxia, due to direct pressure of the tumour. The size of the

tumour must have been appreciably larger, when engorged with blood, than it was after death. Since the lumen of the trachea was diminished to one-half its normal extent after death, it would, in all probability, be still further diminished when the muscles of the neck were in action, and the tumour was filled with blood.

As to the nature of the growth, it is perfectly obvious that it is an encapsuled tumour, occupying the position of the greater part of the thyroid gland, and not a general hypertrophy of that gland. I think we may go further and say that it is a tumour developed within the capsule of the left lobe, isthmus, and probably part of the right lobe of the thyroid body. This is borne out by the nature of its capsule and subjacent healthy acini, and by the fact that its surface fibres are continuous with those of the healthy tip of the right lobe. Its relation to the subhyoidean muscles, trachea and other adjacent structures are identical with those of the usual thyroid enlargements. Furthermore, the great bulk of its acini are lined with epithelium identical with that found in thyroid adenomata of the adult. In reviewing the microscopical characters of this tumour, we are struck with the remarkable complexity of its histological structure. As in the great majority of antenatal tumours of other regions, its stroma is very cellular, a fact which has led many microscopists in the past to regard them as containing both sarcomatous and adenomatous elements. As far as I am aware, there is no clinical evidence to support this view. I regard this rich cellular stroma as peculiar to benign foetal neoplasms that have arisen, in all probability, from a group of cells derived from one or more of the layers of the trilaminar blastoderm, and which, by some developmental error, have been abnormally located in the body. The tumour we are discussing seems to have been derived entirely from mesoblastic and hypoblastic elements. I can find no remnants of epiblast, nothing resembling skin, no hair, no sebaceous matter, and nothing that I can regard as nerve tissue.

The normal thyroid gland, of course, is developed from the hypoblast and mesoblast derived from a special area in the primitive alimentary canal. To fully realise the special features of this foetal adenomatous goitre, we must compare them with those of a thyroid adenoma of the adult. In the adult, the type of acinus is practically always of the cubical celled variety, many of which contain colloid substance, clear fluid or blood. The absence of colloid matter in the present foetal tumour is not surprising, seeing that there is none in the healthy right lobe, and that there is none as a rule, in normal foetal thyroids, until about seven and a half months of intra-uterine

life. Intra-cystic growths are not common in adult thyroid adenomata. Calcareous degeneration in a cyst wall may occur, but the presence of cartilage and spicules of bone is almost unknown. The existence of such a cellular stroma, of non-striped muscle fibres in bundles, and of columnar cells similar to those shown in the photo-micrograph has not, to my knowledge, been recorded in thyroid adenomata of the adult.

Taking into consideration all these exceptional histological features, it is by no means easy to arrive at a satisfactory nomenclature in order to indicate its true nature. I have designated it an "adenomatous bronchocele," and, despite the presence of muscle fibres, cartilage and spicules of bone, I believe it is as much an adenoma, as is the mixed adenomatous tumour of the parotid or sub-maxillary gland of the adult. Of course, the name adenoma does not go to the bottom of the matter, it merely indicates the prevailing tissue element found there. There can be little doubt that the acini found there are of three distinct types, namely, thyroid acini that have undergone excessive development, mucous acini lined with beautiful columnar cells, and acini that are all but solid and are lined with stratified epithelium. Bearing in mind these types of acini, and the fact that they occur in a thyroid tumour, one naturally asks oneself if it is possible that such a condition may have arisen from hypoblast situated in the neighbourhood of any of the thyroidal buds in the primitive alimentary canal. The median lobe of the thyroid arises about the fourth week from hypoblast derived from the primitive alimentary canal, just where the buccal and pharyngeal portions of the tongue unite, a point which is permanently recorded by the foramen cæcum. This point was originally opposite the ventral ends of the second visceral arches. The lateral lobes, on the other hand, are developed as hypoblastic buds from the posterior wall of the fourth visceral cleft at about the fourth week. The median hypoblastic tube divides into two prolongations which fuse with the lateral masses at about the fifth week. The greater part of the right lobe of this child's thyroid is normal. In the left half of the tumour, situated just subjacent to the capsule, are numerous acini that are perfectly normal foetal thyroid acini. These are remnants, in all probability, of a left lobe which has been pressed out against the capsule by the rapidly-growing tumour. The epithelium, normally situated in the region of the foramen cæcum, is a stratified squamous with numerous crypts and mucous glands many of which open into the foramen cæcum or thyroglossal duct. Comparing this with the hypoblastic elements of our tumour, it is not difficult to

see that the columnar-celled acini resemble the mucous glands at the base of the tongue, that the acini lined with stratified epithelium resemble crypts of the ordinary stratified epithelium of the same region, and that the cubical-celled acini are excessive developments of ordinary thyroidal hypoblast. The lymphoid tissue and muscular fibres are identical with that found in the alimentary canal around the foramen cæcum. The presence of cartilage is not difficult to understand, seeing that the ventral ends of the visceral arches are so closely situated to the original thyroidal hypoblastic thickening. In the down growth, a little of the cartilage forming mesoblast may have been carried, and in that foetal cartilage has such an inherent potentiality to ossify, it is not surprising that spicules of bone are present. Taking into consideration the histological character of this tumour, its situation and relation to the thyroid lobes, I think that it is, in all probability, an excessive development of hypoblast and mesoblast, taking its origin in and around the primitive median lobe of the thyroid rather than of the left lateral lobe of that gland.

I have hitherto not made any mention of the relation this tumour bears to so-called dermoid formations. Clinical observers are much too easily satisfied by the term dermoid. They have come to regard the name as self explanatory as to its structure and origin. I cannot help feeling that our present classification of dermoids, though useful to the clinician and to the candidate for examination, is, to the histologist, very unsatisfactory. It is the variety known as tubulo-dermoids, or thyro-dermoids that require special attention from the histologist. I do not know whether Mr. Bland-Sutton would classify this thyroid tumour as a tubulo-dermoid or not. In the *Journal of Obstetrics and Gynæcology of the British Empire* for March, 1903, I described a large congenital coccygeal tumour which bore many histological resemblances to the present one. I thought, after careful consideration, that it had, in all probability, developed from the hypoblast and mesoblast of the neurenteric canal of the embryo. I contented myself with calling that specimen a congenital adenoma arising from certain structures, rather than a post-rectal thyro-dermoid, as Mr. Bland-Sutton would have done. It is quite easy to understand the unique character of epiblastic dermoids, or of dermoids containing representatives of all three layers of the blasto-dermic vesicle, such as are found in the ovary. It is more difficult to appreciate the true significance of so-called thyro-dermoids. Wherein, for example, do they differ from some of those mixed types of adenomata occurring in the parotid, sub-maxillary or mammary glands, and testicle of young people? Is it a difference of structure

or merely of chronological relation between the appearance of the tumour and the foetal development of the individual? Let us assume, for the moment, that the "Rest Theory" of tumour formations is a correct one, and that dermoids are formed in the same way from isolated portions of epithelium or other tissue. Is the difference between a tubulo-dermoid and a foetal tumour, similar to the specimen just described, one of histological structure of that rest, or one relating to the length of time that it remains quiescent? In making a classification of dermoids, more stress should be laid upon the part played in their formation by the three great layers of the tri-laminar blastoderm. A very full bibliography of congenital bronchocele is given by Dr. Ballantyne in his excellent textbook on "Antenatal Pathology and Hygiene," p. 375.

In conclusion, I wish to thank Dr. Harvey of Ashted Row, Birmingham, for his complete history of the case, and Professor Leith, for placing the advantages of the Pathological Department of the University at my disposal.