

and to those who care for him that it is worse than that produced by the disease left to itself.

It is true that we cannot relieve the pain which is due to the pressure of the tumor, but why we should allow the patient previous to that time, or for that matter after it is present, to support the additional suffering which arises from the distention due to obstruction, or that which proceeds from the passage of feces over an ulcerated surface, when we have the power to remove both by an operation which when properly done, controls the action of the bowels perfectly in the majority of cases, and removes all fecal matter from contact with the diseased area, is more than I can understand. It seems to me that it would be quite as reasonable to permit a patient to die of suffocation during diphtheria in a hopelessly fatal case, rather than to supply to him the ease furnished by a tracheotomy, and thus take that sting out of the load of distress to be sustained before death comes. I am confident that any of us who was suffering from the great pain of distention in obstructive cancerous disease of the bowel would call pretty loudly for the relief of colostomy if he had ever seen it given to another under such conditions.

Dr. A. T. CABOT of Boston: Dr. Gage's paper I think shows very clearly that what we need is not fewer but earlier operations; and that if our medical brethren would teach us how to discover these cases earlier, rather than point out cases which we lose because they have come to us too late, we might hope to advance in the direction of cure. We know that in these cancers at that part of the intestine which is accessible to constant examination in the lower bowel and rectum, there is a stage during which a radical removal is a cure. I have a number of patients now well from whom I have removed adenomata, adeno-carcinomas of the lower bowel. If you could learn the existence of these growths of the higher bowel during that stage, the removal would be quite as easy, even more so, because the bowel is less attached to the parts about. It seems to me the thing we must seek for is a closer observation of cases during the earlier stage of obstruction,—partial, recurrent obstruction,—because these patients often give a history of obstipation that amounts almost to obstruction which with castor oil passes off, and then two or three months later they cannot get movements with castor oil, and are turned over to the surgeon. I think we ought to work towards better diagnosis of the earlier stages. Whether we are going to get that by examination of the feces or how, I cannot say; but it seems to me it is "up to" our medical brethren to help us in that way rather than by criticising the cases which, coming to us too late, do not result favorably.

Dr. GAGE: I am well aware that there is room for a wide and honest difference of opinion in regard to these palliative operations. In my own experience, even if immediate relief is obtained, the suffering is simply postponed, and even then the relief is very incomplete. The pain and discomfort incident to the continued

pressure and extension of the disease are still very much in evidence, even if the acute obstruction is overcome.

Personally I should rather go without the operation, unless the disease could be radically removed or there was some special reason for which I wished to live a few weeks longer.

THE RELATIONS EXISTING BETWEEN RESPIRATORY AND INTRAPELVIC DISEASES.¹

BY DANIEL H. CRAIG, M.D., BOSTON.

IN 1878 Professor Skene,⁸ in his inaugural address, called the attention of the New York Obstetrical Society to the very common occurrence of prolapse of the ovary, and requested the members to devote their energies to the discovery of the causes of this lesion in cases in which the cause was not manifest and in which the prolapse was unassociated with either disease in the ovary itself or uterine displacement. During the ensuing year, Drs. Mundé¹² and Goodell¹³ each presented monographs upon the subject, not only considering the causes, but also the course, symptoms, diagnosis and treatment. Various authors have contributed to the subject since and practically all have quoted the list of causes as given in the above papers, and it is because I feel that I can aid a cause which will account for cases not explained by any causes mentioned heretofore that I have undertaken the work, of which I trust you will consider this as but a preliminary report.

Clinically, the condition is of immense importance, for Mundé¹² found uncomplicated prolapse in practically 10% of his cases and they are even more frequent now. In the last five hundred cases of pelvic disease personally diagnosed I have found prolapse of the ovary to play a clinical part as follows:

Total number of cases 500.	
Cases in which ovarian prolapse was not a factor	296 or 59 %
Cases in which the uterus was retrodisplaced, the ovaries <i>not</i> being coincidently prolapsed	62 or 12½%
Cases in which retrodisplacement and ovarian prolapse coexisted	69 or 14 %
Cases in which ovarian prolapse existed with no retrodisplacement of the uterus	73 or 14½%
	500 100—

The increase of 4% in the frequency might be accounted for by the recent greater prevalence of respiratory diseases incident to the annual epidemics of influenza, which had not occurred at the time of Mundé's paper in 1879.

My attention was first directed to the relations existing between respiratory and intrapelvic lesions, and especially those with ovarian prolapse, were invariably made worse and their favorable progress under treatment arrested by the intereurrence of any cough-accompanied lesion. In accordance with this conception

¹ Read before The Massachusetts Medical Society, June 10, 1903.

particular attention was given to the question of antecedent respiratory lesions in all cases in which ovarian prolapse obtained, and especially in those cases specified by Skene in which no cause was manifest. Positive histories were obtained too frequently to allow of its being considered merely coincidental. Very many histories might be adduced to substantiate this statement, but I have chosen three which seem sufficient for the present need.

CASE I. M. B. M., single, aged twenty. Never pregnant. Never any pelvic infection. For a few months acted as clerk in a drug store. For two years has been "running down." Family history strongly tubercular, but father and mother and one sister living and free from tuberculosis. Three years ago had enlarged glands removed from cervical region. Three small glands now palpable on right. Takes cold easily and always has persistent cough following each cold. Cough has at times persisted for months until phthisis was feared. About one year ago began to suffer from backache and leucorrhea and pain in iliac regions. Catamenia began at thirteen. Regular until recently; painless. Duration five days until recently; now three or four days. Two napkins a day. No clots. Leucorrhea variable in amount and not absolutely constant. Exertion increases leucorrhea, which is then thick and yellowish. Has used douches. Not much backache now, but severe at times. Appetite poor. Digestion fair. Bowels fairly regular. Micturition normal.

Physical examination.—Chest and abdomen negative. Hymen intact but distensible. Nulliparous. Cervix long and conical. Uterus in good position, not enlarged nor tender. Some thickening of the right broad ligament. Left tube and ovary prolapsed and the ovary slightly enlarged [cystic?].

CASE II.—B. E. B. Single. Aged twenty-four. Never pregnant. Family and past history irrelevant. Catamenia began at twelve. Rather irregular, often varying between three and five weeks. In spring of three past years has menstruated every two or three weeks. Painless. Duration six to seven days, using thirty napkins, which are well saturated. Clots are frequent, their evacuation being accompanied with pain. Last April (date of history, Sept. 9, 1899) after a severe attack of la grippe, in which she narrowly escaped pneumonia, she suddenly began to feel pressure in the head, most persistent at the vertex. This vertical pain has been constant since. Worse at times. Often disturbs sleep, pain being worse at night. Can get no specific history. Paternal grandfather lived "a sporty life." Vertigo. Constant leucorrhea, sufficient at times to demand protection and of a thick, whitish character. Bowels regular. Micturition normal. General health good except that she is subject to winter cough. Appetite good. Digestion good.

Physical examination.—Thorax and abdomen negative. Perineum and cervix nulliparous. Uterus slightly enlarged and slightly back of the normal axis and decidedly tender. No discharge

from os. Right tube thickened but ovary not felt. Left ovary prolapsed at side of cervix and slightly movable, being apparently loosely adherent.

CASE III. C. S. Married eleven years. Aged thirty. Has had two children and one miscarriage. Oldest child ten and the youngest three. Miscarriage resulted from a fall. First catamenia at fifteen. Always irregular, but much more regular the past two years. Duration seven to nine days. One to two napkins a day. Severely painful at times, necessitating rest in bed. Pain principally in right iliac region. Nearly constant lumbar and sacral backache, which is increased by walking and relieved by lying down. Constant but not excessive leucorrhea. Severe and frequent headaches. Bowels constipated. Micturition normal. Nervous and irritable. General health poor. Has many times feared consumption and has been almost constantly under medical care for pulmonary troubles. Has spent winters in the South to avoid lung troubles. Has raised blood at times.

Physical examination.—Lungs now clear. Heart normal. Uterus in normal axis and very little enlarged. Perineum good. Cervix lacerated, everted and eroded. Right ovary in the posterior cul-de-sac and enlarged, very tender and firmly adherent. Left ovary enlarged and soft.

These histories were chosen because in them the factors which have heretofore been most frequently assigned a causal rôle, perfectly correctly, are so markedly conspicuous by their absence. And here permit me just a word as to my position. I am not attempting to controvert the work already done on this subject, but to amplify the knowledge by the addition of one more etiological factor. Without doubt every one of the causes thus far mentioned, and especially those of Mundé¹² and the eleven enumerated by Goodell,¹³ are all equally or more important.

Goodell,¹⁴ in speaking of the causes of ovarian prolapse, summarizes his views in one terse sentence in which he says that any condition which causes a persistent congestion of the ovary should be considered a cause of its prolapse. Authors are unanimous in stating that the most frequent cause is arrest of involution post-partum, leaving the broad and ovarian ligaments in a relaxed, inelastic condition. In the above three cases, however, not one of the more active ordinary causal factors is present, and the only one of Goodell's eleven present is a lacerated cervix, which I feel sure was placed in the list mainly for the sake of completeness.

But two of these cases had never been pregnant nor infected and were virginal, showing no evidence of any form of sexual excitation. In the third no sign of subinvolution existed, any enlargement in the uterus being readily accounted for by the cervical and ovarian condition.

Study of the mechanism of cough will show that it most abundantly satisfies the causal requirements, first as to congestion and secondly, as I hope to show below, as to the force necessary to push the ovary downward. Westbrook²⁷ has

clearly and concisely described the mechanism of cough, and the following is an abstract of his article:

The muscles of respiration, with the exception of the diaphragm and levatores costarum, are attached to and act upon the upper ribs; the expiratory group make their principal traction upon the lower portion of the thorax. The expiratory group, in which we are particularly interested, are anteriorly and laterally the triangularis sterni above and the recti, obliqui and transversalis abdominis below. The action of the triangularis is simple and in this connection relatively unimportant. The action of the rectus is also simple. Its sole influence is to draw the sternum downward and so to diminish the size of the anterior wall of the abdominal cavity. The action of the obliqui is more complicated; their posterior portions, which pass directly from the crest of the ilium to the ribs exert an immediate and powerful downward traction upon the thoracic walls, not only diminishing the size of the lateral walls of the abdomen, but acting as adductors to the ribs, which have been put in abduction during inspiration. The more anterior portions have a crossed action and make diagonal traction across the abdomen. The upper portion of the external oblique and the middle portion of the internal oblique of the opposite side, attached as they both are to the intervening sheath of the rectus, are equivalent to one long diagonal muscle, passing from the ribs on one side to the crest of the ilium on the opposite side and capable by its contraction of drawing the ribs downward and inward so as to contribute much toward the expiratory diminution of the thoracic and abdominal cavities.

The function of the transversalis is equally important. Its middle portion is attached by strong fascia to the transverse processes of the lumbar vertebræ; while the fibers below arise from the iliac crest and outer half of Poupart's ligament. Above, it arises from the inner surfaces of the costal cartilages. The fibers of this part of the muscle pass horizontally across the abdomen and by the mutual attachment of those of the opposite sides at the linea alba, one continuous muscle is formed, the contraction of which strongly adducts the lower costal cartilages and thus diminishes the epigastric angle. The middle portion of the transversalis acts directly upon the abdominal wall. In its contraction the transversalis acts from the outer border of the quadratus lumborum, as that muscle fixes its tendons in the lumbar region. It tends first to draw the linea alba toward the fixed point; but the antagonism of the opposite side prevents lateral displacement and simply allows the anterior abdominal wall to approach the vertebral bodies, shortening the antero-posterior diameter. The muscular fibers intermediate between the anterior and posterior attachments make strong lateral compression. The lower fibers when they contract tighten the line across the abdomen and compress the intestines.

The posterior muscles are the erector spinæ, serrati postici and quadratus lumborum. When the

erectores spinæ contract they draw the ribs forcibly downward toward the pelvis, lessen the transverse and antero-posterior diameters of the thorax and at the same time tend to shorten the perpendicular axis of the abdomen.

When these powerful muscles of expiration are spasmodically contracted, as in the act of coughing or sneezing, their first effect is to adduct and depress the ribs and by so doing diminish the size of the thorax in all its diameters. But as the abdominal walls only yield in the upward direction and as the contents of the abdominal cavity are practically incompressible, its roof, the diaphragm, which is relaxed during expiration, must ascend and encroach upon the thoracic space, from which air escapes, to compensate for the diminution in its size. The second effect of the expiratory contraction is to lessen the circumference of the abdomen. As the contents are incompressible and as the sphincter muscles, by their contraction, prevent the escape of the contents of the hollow viscera, the decrease in the transverse and antero-posterior diameters must be compensated for by an increase in its long diameter, another factor in the ascent of the diaphragm. Further, during the expiration of cough the glottis is partly closed, thus producing considerable resistance to the egress of the air.

Thus by making a more or less rigid walled cylinder of the abdomen, of which the top is to be elevated by internal pressure, the ascent of this top being resisted not only by gravity but also by a partial closure of the glottis, it is readily understood that the bottom of this cylinder is struck a veritable blow by *contre coup*. Speaking of this effect Westbrook says: "In the pelvis the inferior hemorrhoidal veins and those of the uterus, vagina and bladder are sometimes so turgid that slight ruptures and hemorrhages occur, particularly from the uterus, causing a bloody, serous discharge from the vagina during cough. Involuntary urination also sometimes results from the sudden downward pressure, especially in women."

Weiss⁷⁶ (*Heilkunde*, Vienna), as evidencing the expulsive power of this muscular mechanism, says: "The expelling speed of the air varies considerably. In quiet respiration it passes through the glottis at 125 cm. per second, and the pressure supports 2 mm. of mercury. During violent expiration and coughing, the pressure rises to 150 to 200 mm. and the speed is said to exceed that of the wind in a storm. It is said to be as much as 100 meters a second."

Westbrook's article was written apropos of respiratory diseases, but if it had been his desire to defend such a contention as is suggested by the present paper he could hardly have written more directly to the point.

In operating in or through the vagina no one can fail to note the marked rise and fall of the vaginal vault with each respiration, and if perchance the patient cough or vomit, the specula are not infrequently forced entirely out of the vagina. This impulse caused by cough is also plainly evident if a patient coughs during a digital examination.

Moreover the effect of respiratory influence has long been recognized in various pelvic lesions, particularly herniæ and uterine displacements, but no mention, so far as I am able to learn, has been made in connection with genuine respiratory diseases. This is true of both monographs and textbooks, both old and recent. The respiratory influence most frequently invoked is invariably a secondary one in connection with either the straining due to muscular exertion or that due to intestinal diseases. Almost every author who has written at all comprehensively of displacements of the pelvic viscera has cited straining as a cause. Yet the effect of straining on the pelvic organs is entirely respiratory, being wholly due to the involuntary holding of the breath in inspiration which invariably accompanies the muscular strain. The principal difference existing between the mechanism of strain and that of cough is in the degree of force, and that in straining the glottis is completely closed, with or without the relaxation of the sphincters.

The clinical evidence appearing so conclusive, the actual demonstration and measurement of the relation existing between respiratory causes and pelvic effects was all that was lacking. To supply, very crudely it is true, this want, I have constructed this apparatus, which, notwithstanding its humbleness, I have christened the pelvio-respirometer.

By its use I have been able to read exactly the force of the downward impact upon the pelvic structures resultant from various respiratory movements. Readings have not been made from a large number of subjects, because, as I expected, I found that the figures varied only within very narrow limits, and the readings given represent the mean average reading, with the maximum and minimum extremes only an ounce or a fraction of an ounce above or below.

Before giving the readings, however, I wish to say just a word as to what was to be expected. Many of you have undoubtedly, as I have, seen the so-called "lung-testing" machines commonly placed in public places, the dials of which show how many pounds pressure can be created by forcible expiration. All that I have seen are shamefully mendacious. The average expiratory power for an adult man is $1\frac{1}{2}$ lbs. By training and special gymnastic expansion of the chest a few ounces can be gained. In the adult woman the average expiratory power is $11\frac{1}{2}$ oz., the maximum personally noted being 14 oz. With this explanation I submit the readings obtained by the use of the pelvio-respirometer.

Downward pressure is produced upon the pelvic viscera as follows:

Ordinary inspiration causes a downward intrapelvic pressure of	1.85 ounces
Ordinary expiration a vacuum of	7-16 inch
Forced inspiration a pressure of	2.56 ounces
Forced expiration, a vacuum of	13-16 inch
Slight cough a pressure of	7.5 ounces
Violent (artificial) cough a pressure of	16.3 ounces
Moderate straining a pressure of	6.83 ounces
Strenuous straining a pressure of	10.95 ounces

So that the conditions might as nearly as possible simulate the ordinary conditions, these readings were all made with the patients sitting erect and with the corsets on. One other fact I wish particularly to specify; no readings have been made in cases in which a genuine hard cough due to actual respiratory lesions existed. Much as I desired to do this and also to measure the pelvic effects of sneezing, I feared to allow my enthusiasm to carry me thus far on account of the possibility of sufficient pressure being brought to bear on the fluid in the vagina to force it through the fimbriated ends of the tubes into the peritoneum. I mention sneezing because but for the trespass upon your time I should have detailed one history in which an attack of hay-fever was the direct exciting cause of the symptoms which were due to an uncomplicated prolapse of the left ovary.

The effect of genuine hard cough of bronchitis, for example, certainly far exceeds that of the counterfeit, and yet I think you will agree that a persistent repetition of such force as has been shown to be engendered in the artificial cough would be quite sufficient to in time drive the ovary down.

Moreover, a study of the topographical anatomy of the pelvic contents shows still further reason for this action of cough. Prolapse of the left ovary is slightly more common than of the right, the reason usually assigned being its greater proneness to congestion owing to its venous return circulation. This reason is undoubtedly active and is only supplemented by the relations of the sigmoid flexure as described by Deaver.⁷⁸ He says: "Normally, owing to its long meso-sigmoid, the greater part of the sigmoid is an occupant of the pelvis. *Here it lies in contact with the bladder, the uterus and its appendages,** and those coils of the small intestines which occupy the pelvis." The attachment of the sigmoid being posterior, if it is in relation with the bladder it must cross the top of the left broad ligament in an antero-posterior direction. Consider what must occur when this sigmoid is driven downward by the effects of coughing, or even straining, especially if this sigmoid is loaded, as so frequently occurs in women. But this downward impact represents only one or two equally important factors. According to Westbrook, the mechanism of cough is such as to exactly supply Goodell's one general predisposing cause, namely congestion.

We have also thus far been considering the effect of cough on normal ovaries. Consider now how much this effect is heightened in the instance of an ovary already predisposed to prolapse by pre-existing lesions. Consider, for example, its effect upon an ovary enlarged, heavy and turgid with the physiological congestion of menstruation, or enlarged and heavy from the presence of a false corpus luteum, or again an ovary but imperfectly sustained by broad and ovarian ligaments weakened by arrested involution, and does not the evidence seem conclusive?

And of all the causes of ovarian prolapse respiratory lesions are certainly amongst the most

* The italics are my own.

important. First, because in our New England climate catarrhal conditions of the respiratory tract, accompanied by more or less persistent cough, are so common as to have by familiarity bred a certain degree of contempt, especially in the laity. Secondly, because this is a cause which does not act insidiously and unsuspectedly, but frankly and openly, thereby offering the greatest possible scope for the highest attainment of medical science; namely, the prevention of disease.

But before proceeding to the consideration of the prevention of complications, I wish to offer one other suggestion. Throughout the literature of the subject I find comparatively frequent reference to congenital ovarian prolapse. My suggestion is that these cases may be better accounted for. In congenital malformations several factors generally act conjointly and it is anatomically difficult to understand how any such action can produce *downward* and backward congenital ovarian displacement. Ovaries are congenitally unquestionably displaced anteriorly, as in Engelmann's¹⁵ cases and into hernial sacs, but where such conditions as persistence of the lumbo-ovarian ligament or the existence of the appendiculo-ovarian ligament of Clado obtain, the ovary is maintained above its normal level.

May not at least a part of these so-called congenital prolapse cases be due to the congestion and pressure effects of respiratory diseases — for example, whooping-cough — during childhood, no symptoms manifesting themselves until after the maturation of the organs?

If we grant that the above deductions are correct, at least in part, much can be done, especially in women known to be the subjects of pelvic lesions, by prompt and efficient attention to the respiratory lesions; and if for any reason it is inadvisable or impossible to inhibit the cough, much may be done to lessen its evil effects upon the pelvic viscera. And I say pelvic viscera advisedly, for while I have confined myself to-day entirely to the ovarian conditions, you can all easily see the concomitant influence on the other pelvic structures.

The prevention of pelvic complications of respiratory lesions rests not with the gynecologists but with the general practitioner, for it is he who sees the cases long before he needs to refer them to us.

The following suggestions may, with others better known to the general practitioner than to us, serve to avoid such complications:

The congestion of menstruation acting in conjunction with that of cough is always harmful and even the nulliparous should be guarded against it. As corsets lessen decidedly the normal abdominal resiliency and go far toward destroying the so-called retentive power of the abdominal mechanism, they had better be proscribed during any severe and long persisting cough-accompanied lesion, especially during the catamenia.

By requiring a patient to assume the prone position for a few minutes after a violent coughing spell, disengorgement of the pelvic vessels is favored and gravity assists the ovarian supports.

If ovarian, or pelvic, involvement is suspected

much good may result from the employment of the pelvic respiratory massage as suggested by Williams. This consists in having the patient assume the genu-pectoral or knee-elbow position and aspirate the pelvic vessels by slow force-expiration about fourteen times a minute.

Complications may also be avoided in those already the subject of pelvic disease, by insistently warning them of the necessity of avoiding a cough and the importance of prompt and efficient attention should such a condition arise.

ADDENDUM.

Having pursued this study thus far, which, by the way, I consider as probably only the beginning, I naturally desired to know if the downward impact of practically one pound, as shown by the pelvio-respirometer, was really sufficient to throw the ovary down. While I do not consider my data as conclusive as yet and shall investigate the matter further, I have, since the completion of the paper, thanks to the kind co-operation of Professors Thayer, Cushing and Leary, been able to make a series of investigations on the cadaver and learn that in the dead subject a pressure of 10 oz. is sufficient to carry the fundus of the uterus to the bottom of the cul-de-sac of Douglas. A slightly greater force is requisite to so completely prolapse the ovary. It is carried down to the level of the utero-sacral ligaments by a pressure of 12½ oz. and is completely prolapsed by a pressure of 14 oz. The normal vital ligaments would undoubtedly act slightly different from those on the cadaver, but if the respective resistance imparted to the hand is of any value the ligament on the cadaver seemed much more resistant than are those ordinarily felt in operating, but of course totally lacking in resiliency.

Taking these findings as a basis, it appears that the force engendered by cough is slightly in excess of that required.

BIBLIOGRAPHY.

Being a list, chronologically arranged, of the literature consulted in the pursuit of this investigation.

1. 1850 -- Rigby: On Displacements of the Ovary. * Med. Times, Lond., July 6, 1850, Vol. i, p. 6.
2. Rigby: On Displacements of the Ovary. Med. Times, Lond., Vol. i, p. 275.
3. 1851 -- Rigby: On Displacements of the Ovary. Med. Times, Lond., Vol. ii, p. 115.
4. 1860 -- Barker: Case of Prolapsed Ovary. N. Y. Med. Times, iii, p. 355.
5. 1863 -- Holmes: Prolapse of an Ovary. Chicago Med. Journ., xx, 117.
6. Byford: Medical and Surgical Treatment of Women.
7. Warner: Downward Displacement of an Ovary. Journ. of Gyn. Soc. of Bost., vi, p. 342.
8. 1878 -- Thompson: Colds and Coughs.
- [9] Skene: Asks Society to Investigate Causes of Prolapse of the Ovaries. Trans. N. Y. Obstet. Soc.
10. Goodell: Prolapse of both Ovaries. Med. and Surg. Reporter, xxxviii, p. 7.
11. Keating and Coe: Clinical Gynecology.
12. 1879 -- Mundé: Prolapse of the Ovary. Gyn. Trans., Vol. iv, p. 164.
13. Goodell: On the Prolapse of the Ovary. Med. News, xxxvii, p. 161.
14. Goodell: Lessons in Gynecology.
15. 1880 -- Engelmann: Two Cases of Anterior Displacement of the Ovary Simulating Inguinal Hernia. Buttey's Op., Gyn. Trans., v.
16. Byford: Displacement of the Ovary. Bost. Med. and Surg. Journ., p. 433.
17. Lyman: Prolapse of the Ovary Relieved by Pessary. Boston Med. and Surg. Journ., p. 319.
18. Thomas: Chronic Ovaritis with Prolapse of the Ovary. Med. and Surg. Reporter, p. 160.

* First article upon the subject.

19. Colvin: Prolapse of the Ovary. *Buffalo Med. and Surg. Journ.*, p. 285.
20. Cushing: On Intrapelvic Prolapse of the Ovaries. *West. Lancet*, ix, p. 529.
21. Goodell: Clinical Lecture on Pelvic Abscess and Prolapse of the Ovary. *Internat. Clinics*.
22. 1881 — Herman: On Prolapse of the Ovaries. *Med. Times and Gaz.*, ii, pp. 440, 460 and 488.
23. 1882 — Tait: The Pathology and Treatment of Diseases of the Ovary.
24. Herriek: Prolapse of the Ovary, its Differential Diagnosis. *Med. Annals*, i-iii, p. 213.
25. 1884 — Hunter: Prolapse of the Ovary. *Med. Times*, xiv, p. 559.
26. 1885 — Chunn: Notes on a Case of Prolapsed Ovary Treated by Pessary, with Remarks on Pessaries. *Maryland Med. Journ.*, xiii, p. 21.
27. Westbrook: The Mechanism of Cough. *Ref. Handbook Med. Sci.*, ii, p. 312.
28. 1886 — Boldt: A Case of Vaso-Motor Neurosis Dependent on Ovarian Displacement. *Am. Journ. of Obstet.*, xix, p. 135.
29. Madden: On Displacement of the Ovaries. *Trans. Acad. of Med. in Ireland*, vi, p. 211.
30. 1887 — Mundé: Minor Surgical Gynecology.
31. 1888 — Byford: Diseases of Women, 4th Edition.
32. Tait: Diseases of Women and Abdominal Surgery.
33. 1889 — Marey: The Radical Cure of Hernia.
34. 1890 — Duke: On Prolapse of the Ovary. *Med. Press and Circ.*, i, p. 79.
35. Bell: A Case of Detached Right Ovary. *Lond. Lancet*, ii, p. 79.
36. 1891 — Goelet: Retroversion with Prolapse of Both Ovaries and Oophoritis Cured by Electricity. *N. Y. Journ. of Gyn. and Obstet.*, i, p. 156.
37. 1892 — Massey: A Case Illustrating the Treatment of Painful Prolapsed Ovaries in Young Girls. *Annals of Gyn. and Ped.*, xiii, p. 199.
38. Rees: Displacement of the Ovaries. *Trans. So. Carolina Med. Ass.*, p. 145.
39. 1893 — Budin: The Relation that the Uterus Bears to the Intestines in Obstetrics and Gynecology. *Internat. Clinics*, 3d Series, iii, p. 285.
40. Haven and Craigie: Prolapsed Uteri. *Ref. Handbook Med. Sci.*, ix, p. 750.
41. 1894 — Williams: Uterine Displacements. *Annual of the Univ. Med. Sci.*, p. F 20.
42. Ludlam: Indications and Contraindications for the Pessary in Displaced Ovaries. *The Clinique*, xv, p. 569.
43. Garrigues: Diseases of Women.
44. Janvrin: In Discussion. *N. Y. Journ. of Gyn. and Obstet.*, iv, p. 708.
45. 1895 — Dennis: System of Surgery.
46. Bishop: Chronic Inguinal Hernia. *Internat. Clinics*, 4th Series, iv, p. 213.
47. Crowell: Prolapsed Ovaries. *Am. Journ. of Surg. and Gyn.*, viii, p. 99.
48. Tillaux: *Traité d'Anatomie Topographique*.
49. 1896 — Crowell: Prolapsed Ovaries. *Trans. Mo. Med. Ass.*, p. 154.
50. 1897 — O'Donovan: What shall be Done with Prolapsed Ovaries? *Maryland Med. Journ.*, xxxvii, p. 55.
51. Hirst: The Operative Treatment of a Prolapsed Ovary. *Am. Journ. of Obstet.*, xxxv, p. 536.
52. Penrose: Diseases of Women.
53. 1898 — Baldy: American Textbook of Gynecology.
54. Kelly: Operative Gynecology.
55. Herman: Diseases of Women.
56. 1899 — Dudley: Diseases of Women. *Etiology and Mechanism of Prolapse*, p. 573; *Etiology of Retroversion*, p. 591.
57. 1900 — Schaeffer: Gynecology.
58. Wiggin: A Brief Review of Our Knowledge Concerning the Backward Displacement of the Pelvic Organs. *Lond. Lancet*, i, p. 449.
59. Montgomery: Diseases of Women.
60. 1901 — Roberts: Gynecological Pathology.
61. Abel-Bandler: Gynecological Pathology.
62. 1902 — Mann: In Discussion. *Gyn. Trans.*, xxvii, p. 71.
63. Leuf: Gynecology, Obstetrics, Menopause.
64. Davenport: Diseases of Women.
65. Henry: Practical Gynecology.
66. Byford: Manual of Gynecology. Prolapse of the Ovary, p. 246.
67. Practical Medicine Series of Year Books.
68. Heil: Dangers Incidental to Continuous Sneezing in Pregnancy. Illustrated by a Case. *Progressive Med.*, Sept., p. 83, from the *Munch. med. Woch.*, No. 44.
69. West: Diseases of the Organs of Respiration.
70. Beyea: The Surgical Elevation and Conservation of the Prolapsed Ovary and Tube. *Am. Med.*, iii, p. 1087.
71. Dudley: Principles and Practice of Gynecology.
72. Nothnagel's Encyclopedia, Vol. iv, Diseases of the Bronchi, Pleura and Lungs.
73. 1903 — Gould: Year Book of Medicine and Surgery.
74. Herman: Diseases of Women.
75. Practical Medicine Series of Year Books.
76. Weiss: Force of Cough. *Internat. Med. Annual*, p. 438.
77. Monprofit: *Chirurgie des Ovaire et des Trompes*.
78. Deaver: Surgical Anatomy.
79. Schroeder: In *Ziemssen's Cyclopaedia of Practical Medicine*, x.
80. Barnes: On Diseases of Women.
81. Mann: American System of Gynecology, p. 881.

CARCINOMA OF CHOROID METASTATIC FROM PROSTATE.

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W. G. C., age fifty-six, came to the eye clinic of the Boston City Hospital Sept. 29, 1902, and the following history was obtained:

Born in Pennsylvania. Hotel clerk.

Family history. — Mother and father dead; cause unknown. Sister alive and well.

Past history. — He entered the Boston City Hospital Oct. 9, 1901, in the service of Dr. Munro, for difficulty in urination. The records show a diagnosis of hypertrophy of prostate, with a history of difficulty of urination covering a period of ten years and for a year more or less dribbling of urine.

Physical examination at that time is recorded as follows: Obese, color fair. Pupils small, but react. Tongue clear. Heart, systolic murmur over base with aortic second accentuated. Liver palpable about two fingers below. Abdomen prominent. Temperature 100. Pulse 110°.

Rectal examination. — Flat, broad prostate, not projecting, but slightly into rectum and upper end not within reach of finger. Operation advised and refused. Taught how to use catheter.

Present history. — Four weeks ago he noticed a dimness of vision of the left eye and went to an eye clinic, where he was told that he had a retinal separation. The vision became more and more defective until a week ago, when it was reduced to light perception accompanied by severe pain in eye and all over left side and front of head. The pain was much worse at night. He also complained of great weakness and shortness of breath. Has lost sixty pounds in one year.

Examination showed a well-developed man, but poorly nourished and very anemic to the point of cachexia. Right eye normal. Left eye presented a marked circumferential injection, pupil widely dilated and cloudy looking, iris muddy, cornea steamy and anesthetic, and tension plus; fundus could not be seen on account of cloudy media, perception of light only. Under use of eserine and cocaine the pain and injection diminished.

On Oct. 6 I first saw the case and by that time, though the tension was still plus and the eye showed all the signs of acute glaucoma, the media had cleared enough under the eserine to allow a view of the fundus. The ophthalmoscope showed a separation of the retina in the upper temporal quadrant extending into the lower quadrant, beyond which the retina could not be followed on account of vitreous haziness. The cause of the separation could not be made out by use of the ophthalmoscope, but the clinical history of localized retinal separation, followed by acute glaucoma and accompanied by beginning cachectic condition, led me to a diagnosis of choroidal tumor, probably sarcoma, with involvement of other organs, especially the liver. The treatment of the glaucoma with eserine was continued and the patient transferred to the medical wards for observation and treatment of his general condition.

The following additional facts were taken from the medical records:

Marked arteriosclerosis. No general glandular enlargement. Mucous membrane pale. Tongue protruded straight, considerable white coat.

Thorax. — Barrel-shaped. Some prominence of lower half right. Resonance good throughout. Some slight dullness at left apex. No apparent change of vocal fremitus. Expiration prolonged.

Heart. — Upper border in third space, right 5 cm. to right, left 9 cm. to left, of mid-sternum. Sounds best heard at fifth space inside of nipple line. Sounds clear, strong through-