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FIFTEEN MONTHS' EXPERIENCE

OF

Electric Illumination of the Bladder,

IN THE

DIAGNOSIS OF OBSCURE VESICAL DISEASE.

BY

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FIFTEEN MONTHS' EXPERIENCE OF ELECTRIC ILLUMINATION OF THE BLADDER, IN THE DIAGNOSIS OF OBSCURE VESICAL DISEASE.[1]

I HAVE already[2] urged the paramount necessity for unremitting practice with the electric cystoscope, if any degree of accuracy in diagnosis, prognosis, and treatment is aimed at, in order to enable the observer to avoid the many pitfalls or visual fallacies which the mucous membrane of the bladder presents both in health and disease under electric light.. It is perfectly true that a novice may recognise a typical growth or a glistening stone without difficulty, but it is also equally true that the inexperienced cystoscopist will be readily and more often deceived by the perplexing appearances which the mucous membrane is wont to assume under the varying conditions of relaxation, congestion, extravasation, and infiltration, and may be tempted to interfere operatively, to his own and the patient's detriment, under the belief that he has to deal with a growth, when no such morbid condition is present. I have already seen such a mistake happen twice, and I wish therefore to preface the real object of this communication, by drawing attention to certain conditions which are most likely to prove deceptive. Visual fallacies in electric cystoscopy may be grouped under two headings: 1. Those encountered in the healthy bladder. 2. Those met with in the diseased bladder.

1. The Healthy Bladder.

(*a*) *The Ureteral Cone.*—The first normal pitfall to be avoided is a slightly prolapsed ureter. The vesical orifice of the ureter usually appears as a pouting thick-lipped orifice, but even in perfect health it may be seen as a red gelatinous-looking cone, more or less obtruncated. It is then very like a small sessile tumour; in fact, in one case of hæmorrhagic cystitis, I had some difficulty in dissuading the surgeon who had "discovered" the prolapse, from operating in order to remove it. The similarity is much increased by the magnifying power which the prism possesses. To recognise it, the cystoscopist notes that its position corresponds to the postero-external angle of the trigone; that the summit is slightly flattened, depressed, and occupied by a small orifice,

[1] Abstract of a paper read before the Medical Society of London, on March 11th. The subject was illustrated by pathological specimens, wax and clay models of the living bladder, and photographs taken by means of the cystoscope.

[2] *Electric Endoscopy*, p. 48.

whence tiny jets of glycerine-like fluid issue at varying intervals; and, moreover, that the apex not infrequently protrudes and recedes rythmically. This prolapse will, I believe, be chiefly found in patients in whom the ureter is energetically contracting under a constant stimulus, such as that created by a renal stone, by calculous or tuberculous pyelitis, etc., the prolapse being in these cases analogous to the rectal protrusion due to polypi, piles, or worms.[3] Heaped-up mucous membrane at the ureteral orifice has a similar appearance.

(*b*) *Rugæ.*—The healthy, lissom, inelastic mucous membrane, when folded in by the contracting muscle tunics, forms creases, plaits, and wrinkles, which are sometimes caught sight of in profile, and which then appear like rows of papillomata. By turning the prism so as to fullface them, the deception is detected. When these rugæ are inflamed or swollen, their appearance is still more puzzling.

2. The Diseased Bladder.

(*a*) *Rugæ*—Not infrequently, in hæmorrhagic cystitis, parallel rows of purple or blood-red rugæ are seen, which, if caught in profile, resemble multiple villous growths very markedly. This condition and fallacy was well illustrated in a patient of Dr. Davson's. The right side of the bladder (Case XVIII) was covered with parallel upraised plicæ of a deep blood-red colour, whilst on the left side the mucous membrane could be seen to be yellow, smooth, and glistening.

(*b*) *Polyhedral or Rectangular Quiltings of Chronic Cystitis.*—The mucous membrane is swollen and gelatinous in certain forms of chronic cystitis. It gets rucked up and appears quilted, the enclosed patches projecting forwards as globose or polypoid bodies. In several cases I have seen the surface irregularly upraised as if by the tips of many fingers. This latter condition usually occurs at the base.

(*c*) *Phosphatic and Encrusted Growths* are sometimes exactly like stones (Cases IV, XIX), but a touch with the tip of the instrument settles the matter.

(*d*) *Hæmorrhages.*—These are usually observed in hæmorrhagic cystitis and in the rare cases of purpura and syphilis (No. 3,601, Hunterian).[4] They form elongated, oval, or roundish elevations of a deep red gelatinous aspect, very similar to epitheliomata. The neighbourhood of the former is, however, usually printed with hæmorrhagic spots, streaks, and blotches. The remaining surface, moreover, is blurred and filamentous.

(*e*) *Tuberculosis.*—Of all the pathological changes of the mucous membrane which need most study, and in which the eye must be carefully trained, the most important is that due to tuberculous or scrofulous disease. I believe that it will be in this disease that the greatest number of mistakes will be made, for in every grade of its severity and in every stage of its progression towards suppuration or absorption, it offers appearances which counterfeit those diseases for which the examination will be most often undertaken. Heaped-up, cockscomb-like projections of swollen mucous membrane mimic the stunted papillary fibroma. The short and tag-like streamers of necrotic tissue resemble the necrotic villi

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[3] If the prolapse exceeds these limits it may advance into the vesical cavity so far as to form rounded tumours of varying sizes. *Cf.*, St. Bartholomew's Hospital Museum, No. 2367. *Path. Trans.*, vol. xiv, 1863, p. 185, or in female children it may even protrude through the vulva, and tempt the surgeon to ligate it, with lethal effect, under the belief that it is a vesical growth; *Cf.*, *Pathol. Trans.* vol. xxx, 1879, p. 310; also Caillé, *Inter. Journal Med. Sciences*, May, 1888, p. 481.

[4] *Cf. Path. Trans.*, vol. xxxviii, 1887, p. 189.

or shreddy ulceration of neoplastic surfaces, whilst the large tabs of infiltrated mucous membrane receding from an ulcer or a stripped-off surface resemble polypi or subvilloid growths.

Electric Cystoscopy v. Digital Exploration for Diagnostic Purposes.—Dr. Nitze, to whom we owe the method, contends that electric cystoscopy should supersede Sir Henry Thompson's operation of digital exploration. This I can fully endorse. I would submit that digital exploration for diagnosis in the greater number of obscure cases is quite needless, and that the electric light is, when used with judgment and experience, quite equal to the finger. To support these statements I give a list of the first forty-three cases in which I used the light for diagnostic purposes. These forty-three cases will serve to compare with the list of forty-three published by Sir Henry Thompson.[5] I have, of course, omitted from this list calculi, vesical growths, and other morbid conditions which have lately come under my care, and which have been easily diagnosed without the light. I have, moreover, excluded a very large number of cases of well-recognised bladder disease in which I have employed the light educationally in order to control my clinical observations and speculations by direct visual research.

The comparison of the two methods and lists permits of the following statements being made:—

1. Digital exploration is a cutting operation, needing confinement to bed. Electric cystoscopy can be performed routinely and rapidly in private or out-patient practice.

2. The former operation needs an anæsthetic. In the latter it is not absolutely necessary. In the greater number of cases I have neither used gaseous narcosis nor cocaine; I employ anæsthesia (*a*) in females for delicacy, (*b*) in tuberculosis or similar cases where the prostatic urethra is extremely sensitive, (*c*) in order to make a leisurely prognosis of a discovered growth so as to determine the expediency of operating.

3. Digital exploration is not absolutely free from risk or hæmorrhage, and frequently either a troublesome fistula or a hypersensitive scar is left in the urethra. Cystoscopy is, if it be gentle and purposive, as free from risk as routine catheterism or sounding.

4. In most cases the educated eye is to be preferred to, and relied upon rather than, the finger. I am well aware that Sir Henry Thompson trusts more to his great tactile delicacy; but, on placing the diagnoses of these two lists side by side, we shall see that the comparison is in favour of sight.

Sir Henry Thompson's List.	Cases.
Nothing found	14
Calculi	2
A scale of calculous matter	4
Tumours	20
Prostatic	2
Subvilloid condition	1
	43

Author's List.	Cases.
Nothing abnormal seen (Cases XVI and XXIX)	2
Calculi	2
Renal hæmaturia	6
Tubercular cystitis	9
Hæmorrhagic cystitis	2
Tumours	15
Chronic cystitis	7
	43

5. The cystoscope affords us not infrequently a sound prognosis, and intimates when to interfere and when to leave alone; if it indicates operative interference, it also points to the path (supra-

[5] Sir Henry Thompson, *Tumours of the Bladder*, p. 29.

pubic or perineal) best suited for access to the growth, and for its complete eradication.

6. It must be readily admitted that digital exploration allows of the bladder being subsequently drained; but the rest thus afforded is not always necessary, nor is it always productive of benefit; for example, Cases III, XV, XXII, XXIV, XXX, XXXI, XXXIV in Sir Henry Thompson's list were not improved by drainage.

Certain important questions arise out of the consideration of the vesical tumours in this list, so that they will be briefly detailed:—

CASE I.—N. C., aged 70, under Mr. Eve. Sixteen months before death a profuse hæmaturia appeared, which never subsequently left him. He suffered no pain, nor was he troubled with frequency until the disease was considerably advanced. Cystoscopy revealed a sessile lobulated tumour on the right side of the trigone. This was evidently malignant. No operation was advised. The bladder was subsequently drained to afford relief. On *post-mortem* examination, deposits were found in the liver.

CASE II.—M. B., female, aged 55, under Mr. Heycock. Intermittent hæmaturia for three years. No pain on micturition. No especial frequency until onset of cystitis and cessation of hæmaturia three years after first appearance of blood. Cystoscope revealed a pedicled walnut-sized growth on the left side of the base of the bladder far back. The relation of the site to the left ureter was, unfortunately, not determined. It was removed by the *écraseur*, the thick stout pedicle being easily cut through. She made a good recovery; but, after an interval of nine months, the patient returned. The growth was seen, by means of the cystoscope, to have recurred at the site of the original tumour. It was now sessile and gelatinous, and was accompanied by a satellite of a similar appearance. The original tumour was a soft alveolar carcinoma (Mr. D'Arcy Power).

CASE III.—J. L., male, aged 62, under Mr. Heycock. Daily hæmaturia for one year. No pain or inconvenience except on passing clots. An extensive villus-covered growth on posterior wall. No operation.

CASE IV.—G. M., male, aged 63, under Mr. Edwards. Hæmaturia appeared three years ago, and had recurred about every two months. Latterly hæmaturia had been more frequent. No pain or irritability. Slight scalding only on micturition. The cystoscope revealed the entire surface (?) of the bladder covered with coarse veal-fibred, shreddy tags of an ulcerating epithelioma. Operation not advised. Induration of wall felt *per rectum*.

CASE V.—Mr. P., aged 45, under the care of Dr. de Gruyther (kindly referred to me by Dr. Carmalt Jones). Bowel symptoms first noticed, such as colic, constipation, diarrhœa, and vomiting. On the attack subsiding he passed a quantity of blood in his urine, and asserted that "wind" preceded it. Acute cystitis followed in a day or two. The electric light revealed a small tangerine-sized epithelioma springing from the posterior wall of the bladder immediately behind the interureteral bar. The gut was evidently invaded. Large pieces of growth of soft alveolar carcinoma (Mr. D'Arcy Power) were passed. Operation contra-indicated.

CASE VI.—R., aged 49, kindly sent me by Dr. Fly Smith. Hæmaturia of two years' duration. No symptoms before the blood appeared. Subsequently a transient pain occurred after the act of micturition; was quite free from blood in a day or two, but developed symptoms of stone, for which he was sounded. He was completely well for eight months, when he had a similar attack, of which he

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THE following is a tabular statement of the cases observed:—

No.	Initials.	Sex.	Age.	Under the Care of.	Present at the Cystoscopy.	Prominent Symptom.	Disease Found.
1	B. E.	M	34	Self	Self. Examined five times	Hæmaturia	Hæmorrhagic cystitis.
2	Mr. B.	,,	30	,,	Self. Examined twice	,,	Renal source.
3	N. C.	,,	70	Mr. Eve	Mr. Eve and others	,,	Epithelioma of base (right side) drained.
4	M. B.	F	55	Mr. Heycock	Mr. Heycock and others	,,	Encephaloid cancer of left base removed, and recurred.
5	Mr. C.	M	52	Drs. Harvey and Underwood	Dr. Underwood	,,	Of renal origin.
6	Mr. H.	,,	31	Mr. Molson	Self	Frequency and pain	Large calculus, (latent).
7	R. S.	F	27	Mr. Jessett	Mr. Jessett and others	Pain	Chronic cystitis.
8	W. G.	M	26	Mr. McCarthy	Mr. McCarthy and others	Hæmaturia	Tubercular disease of base.
9	—	,,	20	Dr. Calvert and Mr. Reeves	Several	,,	Tubercular cystitis.
10	I. L.	,,	62	Mr. Heycock	Mr. Heycock and others	,,	Villous epithelioma, (extensive). Operation not advised.
11	L. N.	,,	24	Mr. Coulson	Mr. Coulson and others	,,	Tuberculous cystitis.
12	G. M.	,,	63	Mr. Edwards	Mr. Edwards and others	,,	Villous (?) carcinoma. Operation not advised.
13	Mr.J.H.	,,	60	Dr. Benham	Dr. Benham	,, (profuse)	Calculus.
14	Mr. P.	,,	45	Drs. De Gruyther and Carmalt Jones	Several	,,	Carcinoma of posterior wall. Operation contraindicated.
15	Mr. H.	,,	65	Dr. F. M. Corner	,,	Frequency and pain	Chronic cystitis.
16	Mr. C.	,,	55	Dr. Slimon	,,	,, ,,	Swelling of neck. Died of tuberculosis.
17	Mr. M.	,,	26	Sir A. Clark	,,	,, ,,	Tuberculosis.
18	Mrs. H.	F	40	Drs. Davson and [Waterhouse	Dr. Davson & Dr. Waterhouse	Hæmaturia	Right renal hæmaturia and localised right-sided hæmorrhagic cystitis.
19	R.	M	40	Dr. Fly Smith	Dr. Fly Smith	Frequency	Alveolar carcinoma of posterior wall. Operation. Recurred.
20	—	,,	43	Dr. Harle, of Hackney	Dr. Harle	Hæmaturia	Villous papilloma with an epitheliomatous base.
21	Mrs. N.	F	40	Dr. Moore, of Maidenhead	Dr. Moore	Pyuria	Of right renal origin. Pyelitis.
22	E. L.	,,	37	Hospital	Self	Frequency and pain	Chronic cystitis.
23	Mrs. T.	,,	46	Dr. Cursham Corner	Several	Frequency and grit	Chronic cystitis.
24	Miss B.	,,	27	Dr. Hepworth, of Manchester and Dr. Battersby, of Cannes	Drs. Hewitt and Lys	Hæmaturia	Left renal origin.
25	R. D.	M	26	Dr. S. Miller, of Windsor	Several	,,	Growth removed. An important case.
26	Mr. W.	,,	37	Dr. Cole, of Bath and Dr. Grose of Melksham	,,	Hæmaturia and frequency	Tubercular exfoliating cystitis.
27	Mr. O.	,,	56	Dr. Travers Stubbs	,,	Hæmaturia six weeks	Epithelioma—removed by suction and recurred.
28	Mr. D.	,,	57	Dr. Stewart, of Newport-on-Tay and Dr. White	Dr. White	Frequency and pain	Chronic cystitis: of prostatic origin
29	Mr. W.	,,	39	Dr. Sparrow, of Southsea	Mr. George Pollock	Frequency	Epithelioma posterior wall; drained
30	Mr.L.J.	,,	62	Dr. Simms	Dr. Simms	Hæmaturia	Epithelioma on posterior wall.
31	Miss W.	F	41	Sir A. Clark	Sir A. Clark and Dr. Matthews Duncan	,,	Of renal origin: (cardiac.)
32	Mrs. B.	,,	43	Dr. Oldfield	Dr. Oldfield	,,	Villous papilloma of posterior wall over left ureter.
33	Mr.F.O.	M	47	Dr. F. M. Corner	Dr. F. M. Corner	,,	Tuberculosis.
34	T.	,,	39	Dr. Cæsar	Several	Hæmaturia and frequency	Tuberculosis.
35	Mr.C.B.	,,	32	Dr. Bull, of Chislehurst	Self. Examined twice	Frequency and pain	Chronic cystitis.
36	Mr.J.H.	,,	53	Homœopath	Dr. Goodman	Hæmaturia	Flat epithelioma posterior wall.
37	I. C.	,,	60	Out Patient	Self	,,	Epithelioma over right ureter.
38	Mr. W.	,,	22	Dr. Debenham and Dr. Goldie	Several	Frequency and pain	Tuberculosis.
39	Mr. H.	,,	44	Self	,,	Profuse hæmaturia two weeks	Hæmorrhagic cystitis.
40	Mr. S.	,,	75	Mr. B. W. Walker	Mr. Walker	Frequency	Chronic cystitis.
41	J. A.	,,	75	Self	Dr. Semple and Dr. Kitching of Cleveland	Pain, frequency and hæmaturia	Epithelioma over right ureter.
42	W. R.	,,	20	,,	Self	Hæmaturia: painless	Ulceration: probably tuberculous.
43	E. P.	,,	20	,,	,,	Great frequency: muco-pus in urine	Prolapsed ureter. Cystitis.

ERRATUM.—Page 7, eighth line, for "Mr. George L. Johnson" *read* "Mr. George Pollock."

again completely recovered. A small hen's-egg-sized phosphatic, encrusted, pedunculated growth was seen, by means of electric light, to be springing from the posterior wall (middle zone) of the bladder. It was removed suprapubically, the base of the pedicle being thoroughly burned with Paquelin's cautery. The wound healed in three weeks, and he left without any symptoms. In three months he returned with recurrence in the scar of the operation. The cystoscope showed a mushroom-shaped tumour exactly similar (Photo. 1) in appearance to its predecessor upon the scar of the anterior wall and upon the site (?) of the former growth. The increase and fusion of these two independent centres was alarmingly rapid. I was compelled to drain the bladder four months after the operation, and found it filled with soft growth of encephaloid cancer (Mr. D'Arcy Power).

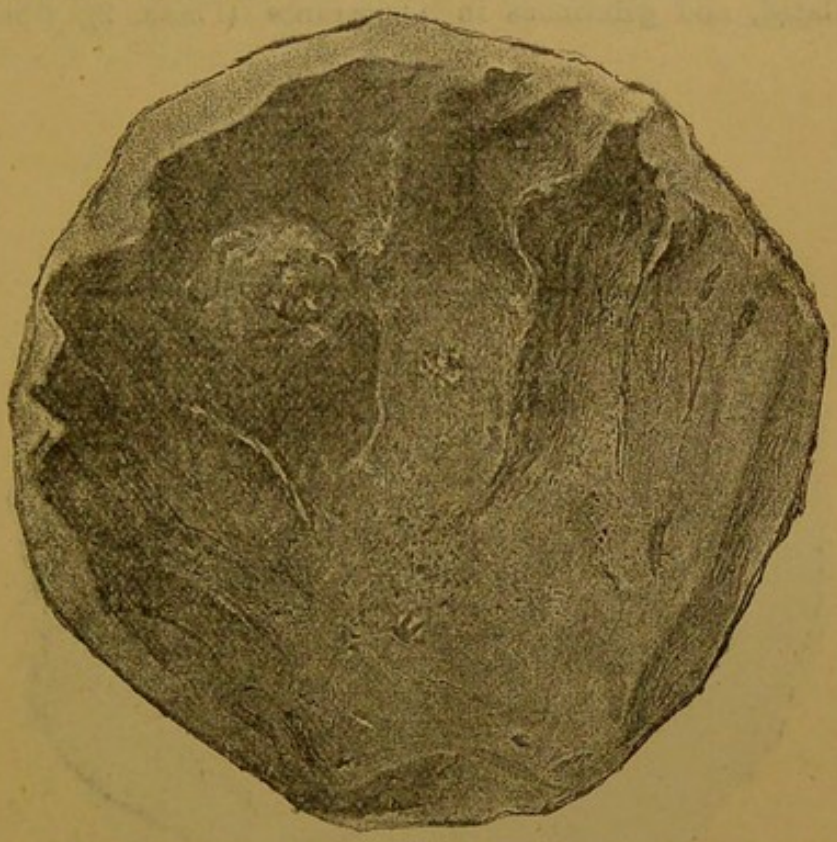

Photo. 1.—These figures are taken from photographs of clay models made from the living bladder (*vide* the JOURNAL, January 5th, 1889).

CASE VII.—Dr. Harle, of Hackney, kindly brought me a patient, of about 40, who was on the eve of leaving for Australia. He had been suffering from a painless hæmaturia, which he evidently did not think very seriously of. A very beautiful primrose-leafed villous-surfaced tumour was seen attached to the upper lip of the left ureteral orifice, its long individual leaves swaying apart at each jet of urine ejected from the subjacent orifice. Its pedicle appeared succulent and epitheliomatous, but I am unable to be certain of its exact character, for he left England immediately.

CASE VIII.—R. D., aged 26, under the care of Dr. S. Miller, of Windsor. Seven years ago, suddenly passed a quantity of blood. For five years he had suffered severely from frequency. Was always in pain, sometimes suprapubically, sometimes in the penis. A No. 30 cystoscope was used. A papilloma was seen on the interureteral bar, as well as another similar one lower down upon the trigone. Subacute cystitis and ulceration were also present.

Perineal cystotomy in May, 1888, and scraping with the finger nail. Last account, December, 1888: "Better than he has been for four years."

CASE IX.—Mr. O., aged 56, kindly sent me by Dr. Travers Stubbs. Five weeks ago was in perfect health, when suddenly, and without warning, he passed a quantity of coffee-coloured urine; painless hæmaturia continued until I saw him, and discovered, with the electric light, a pendulous russet-grey body, which I sucked off with a large evacuator tube, leaving a stump behind. The mucous membrane in the immediate neighbourhood had an injected nodular appearance extremely suggestive of carcinoma.[6] Three months after I made a second examination, and although the patient had recovered from all symptoms, and was looking hale and hearty, I found a walnut-sized growth, deeply cleft, lobulated, and gelatinous in appearance (Photo. 2), which I

Photo. 2.

decided, on account of its rapid growth, sessility, and multiple origin, to leave alone.[7] He has not yet required drainage.

CASE X.—Mr. A. W. The patient had been under the care of Dr. Sparrow, of Southsea, who had diagnosed the presence of polypus in the bladder. The first symptom observed was incontinence at night. This occurred two years and a half before death. There was no frequency, no pain, and no bleeding in the day. He had suffered from syphilis thirteen years before. One year before death he noticed blood at the end of clear micturition. On consulting me he had obvious vesical hæmaturia; three quarters of an ounce of residual urine. His anus was patulous; his pupils

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[6] The "Bloodless" Method of Removing Vesical Growths Controlled by Electric Illumination; JOURNAL, September 22nd, 1888.

[7] The Prognostic Power of the Electric Cystoscope; JOURNAL, October 13th, 1888.

were unequal and immovable. He complained of severe shooting spasms in his chest, so severe that he often had to rock himself to and fro, clasping his arms across his breast to relieve himself. I examined him carefully with the light. Much localised cystitis was present; deep diverticula existed, but no tumour could be seen. I examined him several times under chloroform, and also without anæsthesia. Various surgeons saw him with me, including Mr. George L. Johnson, but I never detected any growth. He improved with irrigation and returned to the country. In four months' time he returned, and I discovered—not with the cystoscope, but on perineal incision to relieve the bladder—an irregular, hard, upraised growth, covering an area equal to a five-shilling piece, situated on the posterior wall, immediately behind the interureteral bar. He was greatly relieved, but died suddenly a month afterwards. The growth proved to be a medullary carcinoma (Mr. D'Arcy Power).

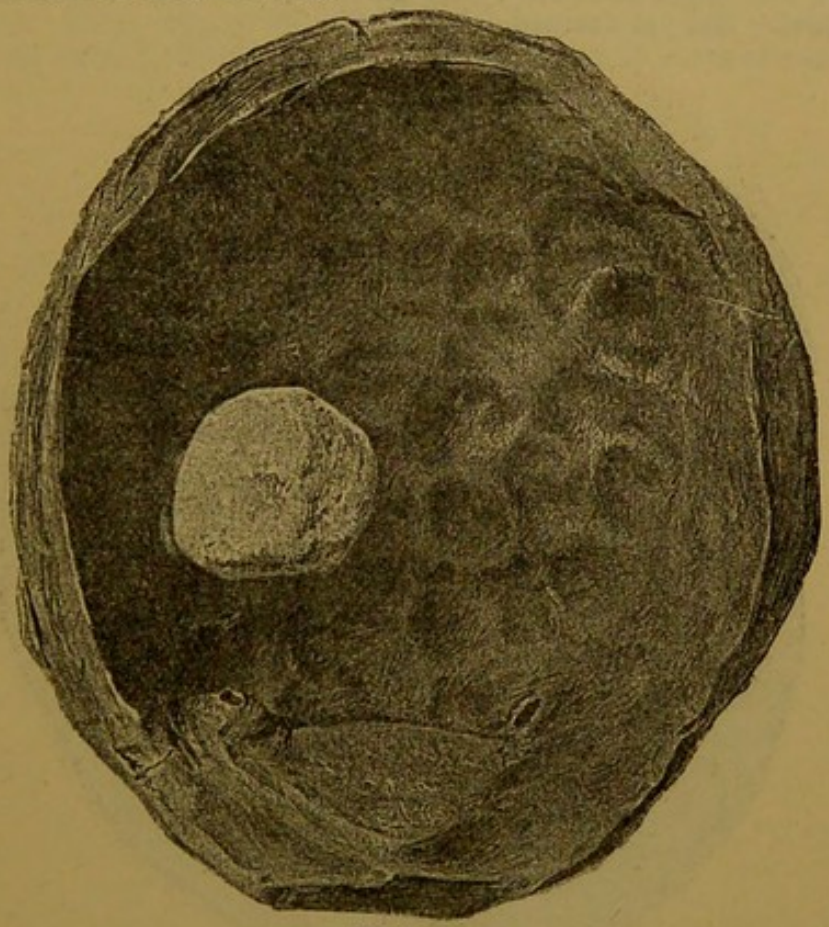

Photo. 3.

Case xi.—Mr. L. J., aged 62, brought by Dr. Simms. Painless hæmaturia of two years' duration. He paid but little attention to it at first. A walnut-sized growth of the epitheliomatous type placed on the posterior wall, above the line of the right ureter, was seen under electric light (Photo. 3). As much swelling of the mucous membrane in the neighbourhood was discovered, and as the patient suffered little or no inconvenience, an operation was not advised, for I deemed he would live longer and with less discomfort if the growth remained unirritated.

Case xii.—Mrs. B., aged 43, under the care of Dr. Oldfield. Hæmaturia of two years' duration; symptoms of vesical growth well marked; much pain and irritability latterly. A pinkish, gelatinous-looking growth was seen overhanging the left ureter.

Here and there villous processes, short and stunted, projected from the surface; its summit was ulcerating. It was evidently pedicled (Photo. 4). The growth was removed by the *écraseur*, and the patient made an excellent recovery. It proved to be a fibro-papilloma.

Case xiii.—Mr. H., aged 53. Hæmaturia of two years duration. At first no pain or frequency was noticeable; latterly, however, he has suffered from repeated attacks of irritability but not pain. Urine contains a very large quantity of blood. The cystoscope revealed a nodular epitheliomatous growth situated on the posterior wall over the right ureter. The projections were of various sizes and shapes; their colour was of a uniform whity-brown, relieved here and there by small clots of a dark crimson or black currant jelly colour, which were evidently plugging, and marking the sources of recent hæmorrhages. Tabs and tags of necrotic growth streamed from the upper portion of the growth (Photo. 5). No operation advised. Not yet drained. Is failing.

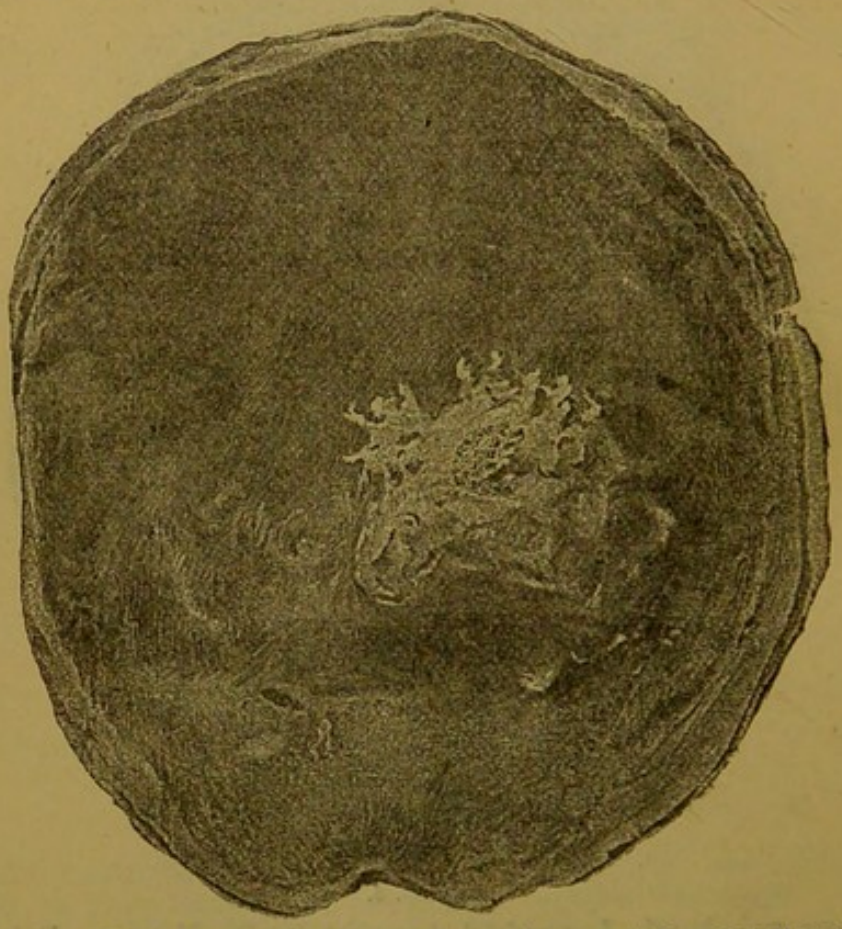

Photo. 4.—This clay model was never properly corrected, and is therefore inaccurate as to size. It is given, however, to show the position and surface of the growth.

Case xiv.—J. C., male, aged 60; an out-patient. Painless hæmaturia of five months' duration. The cystoscope revealed on the right side of the bladder, overhanging the right ureteral orifice, a small epitheliomatous growth. The base was red and fleshy; the surface phosphatic, crusted, and taggy with ulceration (Photo. 6). A trickling stream of blood found its way slowly down the irregular furrows on the face of the growth, and poured into the orifice of the right ureter, whence it was turbulently ejected by the swirl of urine propelled from that orifice. The growth was so characteristic and the base so sessile that no opera-

tion was advised, and the patient died from exhaustion two months afterwards.

CASE XV.—J. A., aged 75. Symptoms of pain and frequency for one month; hæmaturia of one week's duration. Cystoscopy revealed a flat very slightly raised epitheliomatous ulceration at the right ureteral orifice, its area being about that of a sixpenny piece.

The conclusions derived from the consideration of these cases relate to—

1. *The Relative Frequency of Benign and Malignant Growths.*—Sir H. Thompson has said[8] that "villous growth (papilloma) is in fact of all varieties that which most commonly affects the bladder." This, I would submit, is not supported by the statistics of the removal of vesical tumours, which show a very large percentage of recurrences; nor is it warranted by the number of "cures" effected. Thus, out of 29 cases, Sir Henry Thompson records 5 complete cures.[9] Again, Guyon[10] has reported 22 cases of vesical

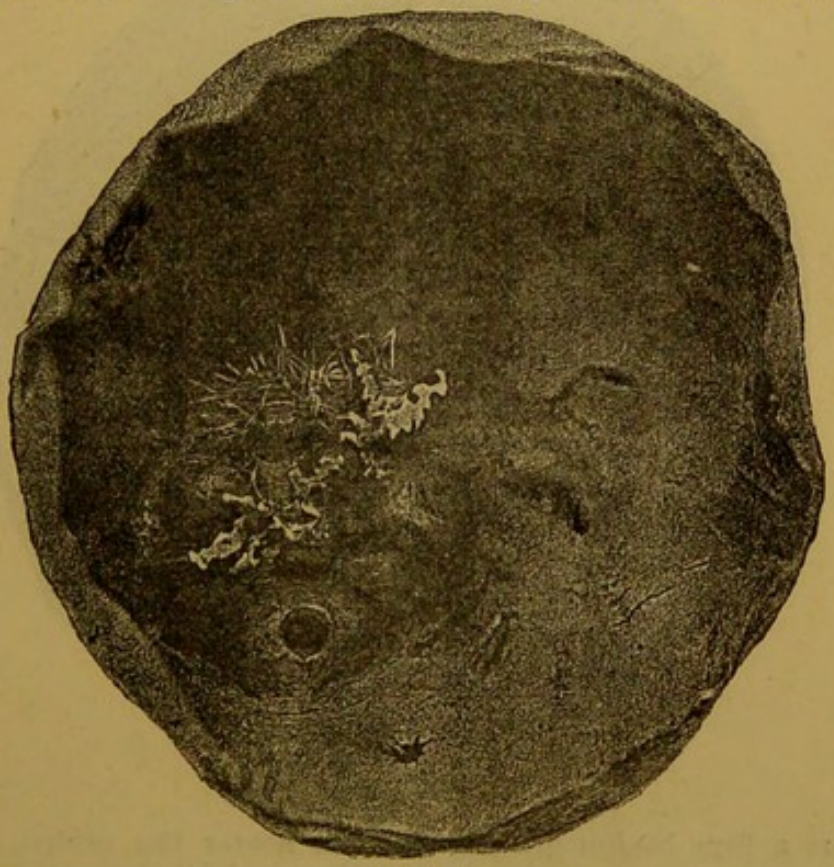

Photo. 5.

growths upon which he has operated, and only 3 of these were benign. My own list for this last year comprises 20 cases of vesical growths, and only 2 of these were benign. Moreover, in preparation of the Jacksonian Prize Essay I examined the various museums of Europe, and found 150 to 200 cases of carcinomatous vesical growths without difficulty, but only about 50 specimens of undoubted[11] papillomatous growth.

2. *The Onset Symptom.*—Professor Gross,[12] in attempting a differential diagnosis between malignant and benign growths,

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[8] *Diseases of the Urinary Organs*, Eighth Edition, p. 411.
[9] *Ibid.*, p. 426.
[10] *Leçons Cliniques*, 1888, *vide* the JOURNAL, December 8th, 1888.
[11] Author's Jacksonian Essay Prize, 1888.
[12] *Diseases of the Urinary Organs*, Third Edition, p. 146.

asserted that if the hæmaturia preceded, with long intervals of rest, the irritability and pain, the tumour was probably of the benign type; and, on the contrary, if irritability and pain appeared first, the growth was usually malignant. This statement, which has been freely recopied, is, I believe, inaccurate and misleading. Most of the 15 cases I have quoted and examined comparatively early, say, within two years of onset, have had painless hæmaturia as an onset symptom; and from these and other cases I am led to believe that the onset of hæmaturia is determined rather by the softness or delicacy of the growth, and the degree of traumatism to which it chances to be liable from its position in the bladder, than by its malignant or benign character. Moreover, the pain and irritability depend more upon the provocative power of the growth to excite reflex action than upon its nature.

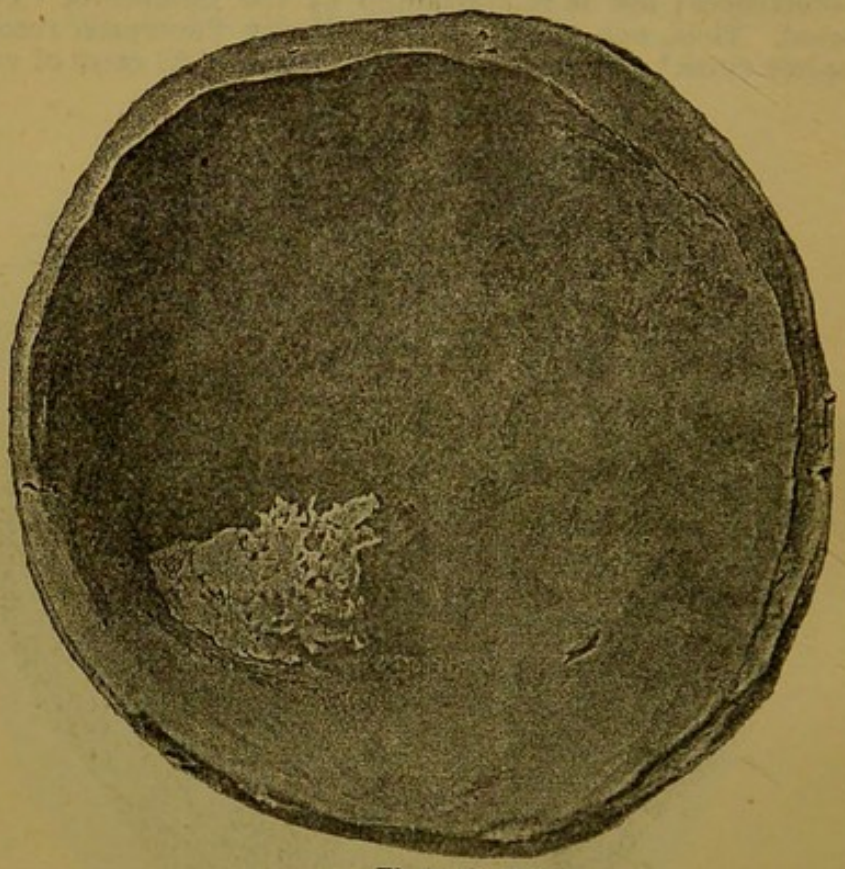

Photo. 6.

Thus a firm benign growth, situated nearer the orifice, or so pedunculated as to readily engage the sensitive neck, will excite pain and irritability at an earlier period; or, again, any growth, by inducing localised cystitis, will evoke similar symptoms. I cannot but believe that this mistake has probably arisen from comparing symptoms due to a hard infiltrating growth which irritates and stimulates the muscular wall long before it bleeds with those induced by typical villous papillomata.

3. *Site.*—Vesical carcinomata originate usually on the posterior wall, usually just behind the ureteral orifices or the interureteral bar, and grow towards the best blood-supply.

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