A Post-Graduate Clinical Lecture ON SYMPTOMLESS HAEMATURIA.

DELIVERED AT THE MANCHESTER ROYAL INFIRMARY,

BY

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[Abstract.]

HAEMATURIA as a clinical manifestation is frequently met with, but—fortunately from the point of view of the diagnosis of its cause—is usually accompanied by other symptoms of urinary disorder: pain, frequency of micturition, pyuria, etc. Here I wish to draw attention to a very interesting group of cases in which haematuria is absolutely the only symptom of which the patient complains; apart from this the urinary functions are in every way normal.

The discovery that blood is present in the urine is more or less a matter of chance, the patient happening to notice the colour; many volunteer the statement that had they been blind they would never have known there was anything wrong. In some of these cases, however, if the bleeding is sufficiently profuse for blood clots to form, pain may be caused by their passage along the ureter or urethra; but such pain is a "side-issue," and, not being dependent upon the actual cause of the haematuria, does not remove the case from the class of "symptomless" haematurias. The great interest of these cases lies in the diagnosis of their cause, and this is a matter entirely of physical examination, absolutely unassisted by any description of subjective symptoms by the patient.

I have recently completed the clinical investigation of 100 cases of symptomless haematuria, with the following results:

A. The haematuria was of vesical origin in 65 cases:

1. Villous papilloma	41
2. Malignant growth	18
3. Enlargement of prostate	3
4. Ulceration from suture left after colporrhaphy	1
5. Simple "solitary" or "mucous" ulcer	1
6. Calculus fixed in post-prostatic pouch	1

B. The haematuria was of renal origin in 35 cases:

7. Bleeding not seen at the time of examination; cause unknown	14
8. Malignant growths (including hypernephroma)	9
9. Papilloma of the renal pelvis	2
10. Angelioma of a renal papilla	1
11. Renal calculus	3
12. Congenital cystic disease	1
13. Chronic nephritis, with small cysts	1
14. Mobile kidney	2
15. "Essential" haematuria	2

Fenwick and others have described cases in which a symptomless haematuria was the first, and for some time the only, manifestation of renal tuberculosis—just as sudden haemoptysis may precede for a long period any other evidence of pulmonary tuberculosis.

1 and 2.—The outstanding feature of a review of these figures is that, while almost every pathological lesion of the kidney and bladder may occasionally manifest itself as a symptomless haematuria, some form of new growth enormously preponderates. Excluding the 14 cases of renal origin which were not bleeding at the time of examination, and in which the kidney affected could not be determined, my series shows 71 new growths out of 86 cases—that is, 82.5 per cent. Of the 71 new growths, 44 were benign and 27 malignant; 12 were situated in the kidney (3 benign and 9 malignant) and 59 in the bladder (41 benign and 18 malignant). Taking all my cases of symptomless haematuria of known etiology, benign new growth was the cause in 51.1 per cent. and malignant new growth in 31.3 per cent. The diagnosis of simple from malignant growths of the bladder is not always possible by cystoscopic examination only, since both may have a villous surface; in the earlier cases of my series all the bladder growths were removed by suprapubic cystotomy and their nature determined by histological examination, but since 1913 the

deciding factor in most cases has been the effect upon them of treatment by the diathermic current applied through a cystoscope; its immediately beneficial effect upon benign growths, and its failure to produce more than very temporary, if any, benefit upon malignant growths, form such a striking contrast as to constitute a useful practical clinical test between innocency and malignancy. In view of the great preponderance of new growths, it is only natural that in any given case of symptomless haematuria the surgeon's first thought will turn to that, and especially to villous papilloma, as the most probable cause; the fact that in about one-third of all cases (31.3 per cent.) a malignant growth is present, possibly in an early and operable stage, serves only to enhance the importance of tracing the haematuria to its source at the earliest opportunity.

Among the causes, other than new growths, in my series were the following:

3. *Enlarged Prostate*.—In three cases bleeding was seen cystoscopically to come from an intravesical enlargement of the prostate, although none of the usual early symptoms of prostatic enlargement were present. There has been no recurrence of haemorrhage since prostatectomy.

4. *Ulceration from Suture*.—Here the blood was seen to come from an ulcer on the posterior wall of the bladder just behind the trigone; in the base of the ulcer a foreign body was seen, which proved to be a chromic catgut suture remaining after an operation of colporrhaphy three years previously; after its removal the ulcer healed readily. There was not the slightest encrustation of urinary salts upon the suture.

5. *Simple "Solitary" Ulcer*.—This patient, a male aged 27, was in hospital for varicose veins, when he commenced with haematuria, which rapidly became so profuse that when I first saw him he was passing almost pure blood—in fact, it clotted in the vessel. Cystoscopy was impossible, so I opened the bladder suprapubically, and found an ulcer three-quarters of an inch in diameter, on the posterior wall, slightly to the left of the middle line and just behind the trigone, and which was bleeding profusely. The bleeding was stopped by the cautery, and never recurred. Some six years later this man again came under my observation, with tuberculosis of the left epididymis and vesicula seminalis; cystoscopy showed the bladder free from ulceration, though the scar of the former ulcer was plainly visible. Fenwick describes cases of simple "solitary" ulcer in which there has been no subsequent development of tuberculosis, but I think that, in my case, the original ulcer was probably of tuberculous origin, although no other evidence of tuberculosis in the body was then discovered. He died of generalized tuberculosis within a year of the second examination.

6. *Vesical Calculus*.—This was a male, aged 60, who had had two attacks of symptomless haematuria at an interval of two years. Cystoscopy showed an intravesical enlargement of the prostate with calculi in the post-prostatic pouch. These were removed, along with the prostate. There were one large and seven small calculi; the large one [shown at the lecture] was the most conspicuously stellate and "spiked" calculus I have met with, each primary "spike" ending in three or four secondary ones. That such a calculus should be unassociated with any pain or other symptoms except the two attacks of haematuria seems very remarkable, and is probably to be explained by its fixity in a post-prostatic pouch.

9, 10, 12, 13.—These conditions were discovered only after exploratory nephrotomy of the kidney to which the haemorrhage had been cystoscopically located, and the two former only after almost complete hemisection of the kidney, the renal pedicle having been previously clamped. In both cases of papilloma the growth was small, single, and situated in the lowest calyx, and was treated by local excision only, with subsequent suture of the kidney. The angelioma was situated on one of the renal papillae towards the upper pole, was about the size of a green pea, and was similarly treated. One of the cases of papilloma had recurrent haematuria four years later; cystoscopy showed the bleeding to come from the same kidney (right), the left kidney acting normally. Nephrotomy showed considerable recurrence of the papillomatous condition, and I removed the kidney, since when there has been no further haemorrhage. The case of angelioma and the second case of papilloma were free from recurrence five years later, but have been lost sight of since.

11. *Renal Calculus*.—One of my three cases was of particular interest, the cause of the haematuria not being recognized at the time. A female, middle-aged, was removed to a

fever hospital, with slight haematuria and slight desquamation of the skin, from a house in which some six weeks previously two cases of undoubted scarlet fever had occurred, she being considered to have a slight degree of post-scarlatinal nephritis. As the haematuria became rather bright red the possibility of villous papilloma of the bladder was considered, and I made a cystoscopic examination. I found a perfectly normal bladder and saw the blood coming from both ureteric orifices. The bleeding ceased entirely in a few days, and I heard nothing further of the case until seven years later, when, the haemorrhage recurring, she was admitted to my wards. Cystoscopy then showed the blood to be coming from the right ureteric orifice only. Radiography disclosed a large-branched calculus in each kidney, completely filling up the pelvis and calyces. Nephro-lithotomy was performed on the right side and three weeks later on the left, with complete arrest of the haemorrhage. This is the only occasion on which I have seen with the cystoscope blood issuing from both ureteric orifices simultaneously in a case of bilateral renal calculus, and such occasions must necessarily be exceedingly rare. A point to emphasize is that in bilateral renal calculus painless haematuria from one kidney may accompany typical renal colic, without haematuria, in the opposite kidney, and, unless a cystoscopic examination be made, and the source of the bleeding definitely determined it might naturally be concluded that the bleeding was from the side of the renal colic. I have recently had such a case where the bleeding was so profuse as to threaten death from haemorrhage, and only a routine cystoscopy prevented the wrong—that is, the non-bleeding—kidney from being operated upon first.

14. *Mobile Kidney*.—In two cases, both males, the kidney to which the haemorrhage was traced was extremely mobile. Exploratory nephrotomy revealed no other abnormality, and nephropexy arrested the bleeding, which has not since recurred—twelve and eight years respectively having elapsed.

15. *"Essential" Haematuria*.—In two cases, the bleeding having been traced to one kidney, exploratory nephrotomy revealed no macroscopic cause, and a portion of renal parenchyma removed for histological examination showed a normal structure. The term "essential" haematuria has been applied to renal haemorrhage, the etiology of which cannot be determined after all the present known methods of urological investigation have been applied with negative result. The most recent writer on this subject, Dr. C. S. Levy,¹ of the Johns Hopkins Hospital, Baltimore, in reviewing thirty cases, evidently does not include exploratory nephrotomy in his methods of urological investigation, and thus instances of 9, 10, and 13 in my series would have been classed as "essential," although nephrotomy revealed a definite cause.

In clinically investigating a case of apparently symptomless haematuria we must first of all make sure, by microscopic detection of blood corpuscles, that it is really haematuria and not the rare condition of haemoglobinuria. Further, we must exclude general diseases that cause haematuria, such as haemophilia, scurvy-rickets, the group of anaemias, and the passive congestion of heart disease. Having decided that the haematuria results from some lesion in the urinary tract, we next require to investigate, in order of urgency, (1) the source of the haemorrhage, whether vesical or renal, and if the latter whether unilateral or bilateral; (2) the nature of the lesion causing it; and (3) the functional condition of the rest of the urinary tract. The physical characters of the blood—whether intimately mixed or not with the urine, whether bright red or dark red, whether associated with clots of any characteristic shape—although serving as a rough and ready guide to the source of the bleeding, are not sufficiently trustworthy to be relied upon in any given case. The brightest haematuria I have ever seen was proved cystoscopically to come from a kidney which subsequent operation showed to be the seat of a sarcoma; while in another case, where the blood was of a dark "porter" colour, intimately mixed with the urine, and associated with attacks of severe left renal colic, cystoscopy showed a large villous papilloma of the bladder almost occluding the left ureteric orifice. By cystoscopy alone can the source of the haemorrhage be determined with certainty, and its application should be regarded as a matter of urgency, particularly if the haemorrhage is actually going on. If the haematuria be of renal origin it is only at this time that the kidney at fault can be discovered; such opportunity, if missed, may not recur for a long period, during which, as we have seen, in about one-third of all cases a malignant growth will

be steadily progressing, and the only chance of its extirpation be lost. Too often does it happen that the practitioner's first efforts are directed not to ascertaining the source of the bleeding, but to immediately arresting it by keeping the patient in bed and administering morphine and internal styptics; though this may allay the alarm which many patients feel when they discover that they are passing blood with the urine, yet in the long run it would be of greater service rather to attempt to continue the haemorrhage until arrangements can be made for a cystoscopic examination to trace it to its source. Only in this manner will disease be located in its earlier and operable stages, and the present appalling mortality of malignant growths of the urinary tract be materially lessened.

Cystoscopy while bleeding is actually occurring will, if the haemorrhage be of renal origin, definitely indicate from which ureteric orifice the blood is escaping; if of vesical origin and not too profuse to obscure vision altogether, not only will the source of the haemorrhage be located but the lesion causing it will be seen. Difficulty will arise only where the bleeding is very profuse, but even here repeatedly washing out the bladder, combined with the introduction of a solution of adrenaline, will usually enable a view to be obtained; where this is found impossible this fact alone is strong presumptive evidence of a vesical origin.

Cystoscopy after cessation of the haemorrhage may fail to show its source: should it have been of vesical origin, then some lesion in the bladder sufficient to cause haemorrhage will be noted, and the absence of such indicates a renal source, although it does not show which kidney is at fault. A definitely abnormal appearance of one ureteric orifice suggests, though it does not prove, that the corresponding kidney is the offender; sometimes help is obtained by an assistant lightly compressing each loin, when, if unilateral haemorrhage be started, it suggests the pathological kidney. If bleeding cannot easily be induced, and if no renal tumour or other physical sign be present, then there is nothing for it but to wait until the haematuria recurs and to cystoscope during the attack.

Where the blood has been seen to issue from one ureteric orifice, then a thorough investigation must be instituted by all the usual urological methods to ascertain the pathological lesion in the corresponding kidney: careful palpation of the loin, a chemical, microscopic, and bacteriological examination of the mixed urine and possibly also of the separated urines after ureter catheterization, radiography, and pyelography. By these positive evidence may be obtained of certain conditions, such as calculus, tumour, or tuberculosis; but if they yield negative evidence only, then the remaining procedure is an exploratory nephrotomy. Before undertaking this, inasmuch as it may disclose some pathological condition requiring nephrectomy, it is essential to investigate the functional capacity of the opposite kidney, and for this I rely most upon the "indigo-carmin" test, the efflux from each ureteric orifice being carefully watched through the cystoscope. Being assured of the efficiency of the opposite kidney, the bleeding kidney is then explored from the loin, the upper end of the ureter and the renal pelvis carefully examined from without, the renal pedicle clamped, and the renal parenchyma freely incised so as to expose the whole of the pelvis and calyces. If no macroscopic lesion be found, a slice of the parenchyma is removed for histological examination and the kidney carefully sutured by deep and superficial catgut sutures. The case must now be classed as an "essential" haematuria, and should the haemorrhage subsequently recur it may be treated medically, with the confidence that one has not overlooked a malignant growth; only if the haemorrhage becomes so profuse as to immediately threaten life should further operative treatment be considered, and this would take the form of nephrectomy.

In the paper already referred to, C. S. Levy traces the after-history of 30 cases of "essential" haematuria, at periods of from one month up to twelve years: 12 cases remained free from recurrence and 18 recurred. Of the 30 cases 5 only were operated upon: 1 by nephrectomy with cure, 3 by nephrotomy (1 without recurrence, 1 with recurrence five years later and twice since, and 1 with recurrence two and a half years later and five times since), and 1 by decapsulation, with recurrence after five years and thrice since; none of the patients developed tubercle, growth, or serious disease subsequently. Although one must admit that the results of operative treatment in true "essential" haematuria are not superior to those of medical or expectant treatment, yet personally I hesitate to class a case as "essential" until an

¹ *Surgery, Gynaecology, and Obstetrics*, January, 1922.

exploratory nephrotomy has proved negative—one has the uncomfortable feeling that an early case of malignant growth might be overlooked. The operation in itself is not a serious risk; it may disclose some curable condition which otherwise might have been missed until it had reached an advanced stage, and even should it prove negative it allows one to regard without alarm any future recurrence of the haematuria.

In conclusion let me again emphasize the great importance, when called to a case of symptomless haematuria, of treating the patient rather than the haemorrhage, and of not attempting to arrest the bleeding until, by means of cystoscopy, it has been traced to its source.

An Address

ON THE

PERNICIOUS VOMITING OF PREGNANCY.*

BY

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FOR more than twenty years I have been of the opinion that all cases of pernicious vomiting of pregnancy are neurotic in origin, and I have treated the condition accordingly. During this period I have met with about 35 cases, but for the purpose of this address I am considering only 29 of them, as the others remained at home for treatment. Of these 29 cases, 5 were in-patients under my care at the Leeds General Infirmary, 17 in the Hospital for Women and Children, Leeds, and the remaining 7 were in nursing homes. All the patients recovered, and in only one case was abortion induced. The advantage of the treatment that I carry out is that the vomiting usually ceases immediately, and induction of abortion is seldom or never necessary. Indeed, I do not know of any grave illness such as this is which responds to treatment so suddenly. By contrast the usual methods of treatment, multitudinous in variety and well known to you all, are prolonged and dissatisfying, and often end in the induction of abortion, which in this disease is attended by a serious risk to the life of the mother.

I will state exactly what I do; nothing could be more simple. The patient is admitted to a hospital or nursing home and put on ordinary diet at once. The nurses are told, if they have not nursed similar cases of mine before, that the vomiting is due to neurosis, that a bowl must not be provided even if the patient should vomit, and that the words "vomit" and "sickness" must not be mentioned in the presence of the patient. They must just expect her to take her food like other patients in the ward, and must not try to persuade her to do so. As a rule the patient will at once take the full ordinary diet and retain it, but sometimes only a small portion is taken for the first day or two, part of which may occasionally be vomited. If any vomiting occurs the patient is assured that it will soon stop and that she will soon be quite well. In most cases a rectal infusion of 4 per cent. glucose is given, and, as a rule, continuously by the drop method. This relieves the thirst and the feeling of exhaustion, and, by diminishing the acidosis, I think it lessens the tendency to vomit. No drugs are used, except a purgative when it seems desirable. There is no necessity for psycho-therapy as ordinarily carried out in medical and surgical cases. Hospital and other cases do much better when they are in a ward than in a separate room.

Simple though this treatment is in principle and in practice, difficulties sometimes occur, and some of these I must mention. It may seem strange to you, but the patients are sometimes reluctant to go to a hospital or nursing home. If induction of abortion, which the doctor often suggests, were advised, there would probably be no difficulty in persuading the patient to leave home; but when an operation is not necessary it is not always easy to convince her of the advantage of institutional treatment. In the severest cases, however, there is seldom any difficulty when the patient and her friends are assured that she will bear the journey satisfactorily.

In August, 1921, I saw a primigravida in consultation with her doctor in a town about thirty miles from Leeds. She was about eight weeks pregnant and had been vomiting for about three weeks. For two weeks she had been under treatment for pernicious vomiting and for several days had not retained any food. Vomiting and retching had been almost incessant for three

or four days. Various medicines had been tried and glucose given by the rectum. The urine had given a strong reaction for acetone when tested a week previously. Her face was drawn, her eyes sunken; she was exhausted and distressed. The pulse was 120 a minute. Her doctor had arrived at the conclusion that nothing but induction of abortion would save her. Her friends were very reluctant for a while to allow her to be taken to Leeds, but after being told that the journey would not harm her, that the vomiting would cease when she arrived there, and that she would soon be better, they agreed to take her. She vomited once on arrival and had a meal of tea, bread-and-butter, and stewed apple as soon as she was settled in bed. She kept it, slept all night, and took coffee, bacon and egg, toast and marmalade for breakfast next morning. Ordinary diet was continued during the ten days she was in Leeds and the vomiting did not recur. When she went home the patient looked and felt quite well.

I will now narrate a case which illustrates the advisability of the patient being placed directly under the daily charge and observation of the obstetric surgeon who advises the treatment. With the exception of this all the cases were treated in Leeds, where I can obtain nurses who have entire faith in the treatment.

The patient was a primigravida, aged about 30, who had been ailing and had had albumin in her urine for four or five years. She was eight weeks pregnant. She had vomited severely for two weeks, and had been in a nursing home in a neighbouring town for about a week and fed with small quantities of Benger's and similar food. This was usually returned, and so were water and tea. She looked very ill, and I pressed her husband and her doctor to send her to Leeds. As they refused, a trial was given to ordinary diet, to the obvious amusement of her incredulous nurses, and glucose enemata were ordered. The vomiting persisted, and when I saw her again three days later she was no better. I noticed at once a capacious bowl still remaining at the bedside, which, in my opinion, was a contributory cause of the persistence of the vomiting. I again expressed my conviction that she would soon be well if she came to Leeds, and advised against induction of abortion, but she remained where she was, and was treated by glucose infusion given continuously and by semi-starvation diet. Sugar, diacetic acid, and albumin were present in the urine. Vomiting continued in varying degrees for some weeks, and eventually she recovered, but the sugar in the urine persisted until after the labour at full time, when she was safely delivered of a weakly child weighing 4 lb. It is my belief that if my advice had been accepted this patient would have recovered much sooner and the life and health of herself and child would have escaped the serious dangers through which they passed.

In three or four cases in which the vomiting has persisted after admission to hospital I have suspected that the patient wished to get rid of her pregnancy. One of them acknowledged, after spontaneous abortion at the sixth month of pregnancy, that she was "determined not to go through with it," and that she had produced the vomiting by putting her finger into her pharynx. In some other instances I have spoken seriously to the patient, and have pointed out the danger of the persistent vomiting and of induced abortion, and afterwards, with one exception, the symptoms have soon cleared up. In the exception, however, abortion was induced. She was sent to the Hospital for Women and Children, Leeds, by her doctor, who told me and the patient that induction was necessary to save her life. She improved after admission, but relapsed again after her friends had visited her and told her that their family doctor said she must have induction of abortion or she would die. She was alternately better and worse for two weeks, the bad turns always following visiting days, and in the end I gave up the struggle and evacuated the uterus.

I trust that I have explained clearly and fully enough the treatment carried out and the difficulties met with, but I would like to emphasize the necessity of having nurses who believe in the treatment. I am occasionally asked if my results are good in toxic cases. My reply is that most of my cases are toxic, but I regard the toxæmia as a result and not as a cause of the vomiting. Many have been seriously ill and emaciated and have had bile-stained conjunctivæ and bile in their urine. Such cases recover as quickly as the less severe and their recovery is more dramatic.

Perhaps I ought to say a word or two about the pathology of this condition, although I am mainly concerned with its treatment. Tweedy¹ thinks that the pernicious vomiting of pregnancy is due to food poisoning; Hirst² that abnormal secretions of the corpus luteum cause it. These theories are highly speculative and have little evidence to support them. Most authorities appear to favour the view that some toxic substance is absorbed from the developing ovum. This seems a more reasonable hypothesis, because there is no condition, apart from pregnancy, like pernicious vomiting. One of my cases, however, seems to offer evidence against it, for the vomiting continued, although the ovum was almost

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