Diyala Journal of Medicine

ORIGINAL RESEARCH
Published: 30 October 2023
Doi: 10.26505/DJM.25017131211

Etiology and outcome of hematospermia :A prospective study

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Received: 11 December 2022
Accepted: 13 May 2023
Published: 30 October 2023

Abstract

Background: Although hematospermia is not common but considered an alarming symptom for patient and doctor. The cause of this worry is that it has been described as a dangerous symptom of prostate cancer by the patients and the health workers.
Objective: To classify the causes and outcome of hematospermia.
Patients and Methods: : This is a prospective study of patients newly diagnosed with hematospermia-diagnosed and treated in private clinic and hospital over a period of 4 years (2018-2022). Data collection and recording done related to demographic, symptomatology, clinical finding, investigations, treatment given and the outcome during 6 months of follow up.
Results: One hundred and six patients with hematospermia were seen in the private clinic and hospital. The mean age was 40 years (25-70). Thirty-six (33.9%) patients were diagnosed as prostatitis clinically or by positive seminal fluid culture. Only (4) patients had prostate carcinoma with only one new case and the other three were known cases of prostate cancer already on treatment. With (4) cases had thrombocytopenia and (2) cases with sickle cell anemia and (1) case each prostate cyst and severe hypertension and vesical stone. (2) cases on anticoagulant therapy. And another (2) cases with history of epididymal surgery. There was no identifiable cause in the remaining 53 patients (50%).
Conclusion: the majority of patients presented with hematospermia were below 50 years and have benign etiology and most of them were self-limited and less than 1% of cases revealed new prostate cancer. So, we can confidently reassure a patient presented with hematospermia due to benign nature of the disease in the majority of patients, especially in young patients.
Keywords: Hematospermia, prostate cancer, prostatitis, seminal fluid, thrombocytopenia.

Introduction

Bloody ejaculate or Hematospermia is defined as the presence of blood in the ejaculate or in the seminal fluid, and is considered a dangerous symptom for any healthy man [1]. Spontaneous passage of blood from any organ of the body like, hemoptysis, hematemesis and hematuria is considered an ominous symptom of cancer in medical science, and this fear is projected also toward hematospermia by both the

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patient and the doctor. Hematospermia is directly linked with prostate cancer by both the patient and the medical personnel. This may further increase the afflicted persons fear [1,2].

Any part or organ in the genital tract and lower urinary tract system could be a source of hematospermia, starting from the testes and epididymis to the vas deferens and then to the seminal vesicles and ejaculatory duct which open in the prostatic fossa. In addition to that, any condition or disease that lead to bleeding tendency being genetic in origin or acquired, may lead to hematospermia as a part of systemic disease [1].

To know the exact incidence of hematospermia is difficult because in most of the times, ejaculates go unobserved during sexual intercourse. However, the incidence of hematospermia in men screened for prostate cancer is about 0.5% [2].

The available data on the etiology and treatment of hematospermia is still limited. According to a study made in India, 18% of patients with hematospermia had genito-urinary tuberculosis [3]. Another study from United State revealed that 14% of patients with hematospermia are due to prostate cancer. Another two studies one from China and another from Sri Lanka concluded that only 3% and 1% of patients with hematospermia had prostate carcinoma respectively, with about 30% due to prostatitis [2,3]. This study aims to show the causes and outcome of patients with hematospermia.

Patients and Methods

This is a prospective study of 106 patients presented to the private clinic and the hospital urosurgery outpatient complaining of hematospermia. The study is carried out over a period of 4 years (2018-2022).

Verbal consent was taken from all patient to include their information in the study. Detailed history was taken and proper physical examination was done for all patients. Initial investigations done for all, including urinalysis, complete blood count, renal function tests, prostatic specific antigen (PSA) and semen analysis with abdominal and trans-rectal ultrasound. Some cases needed further studies according to the initial findings like CT urography, MRI of the pelvis, coagulative studies, urethrography and urethro-cystoscopy. Any patient undergone recent urethral catheterization, urethra-cystoscopy or prostatic biopsy was excluded from the study.

All cases diagnosed as prostatitis whether clinically or with positive semen culture were treated by antibiotics according to the results of culture and sensitivity, and given supportive symptomatic treatment for 4-6 weeks and followed for six months. All other cases were treated and followed according to the diagnosis.

Statistical Analysis

The information was recorded prepared Microsoft excel worksheet (excel 2010) was used for data entry, statistical package for social science (SPSS) version 25 was used. We enter data of age, symptoms, duration, signs, investigations, and diagnosis and the results presented as percentage in tables and analyzed using t-test.

Results

We had 106 patients with hematospermia followed for 6 months from the start of the first attack of hematospermia. Mean age was 40 years (range from 25-70years). Fifty-six

ORIGINAL RESEARCH
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patients (52.8%) were below 40 years and 32 patients (30.2%) were 40-50 year while only 20 patients (18.8%) were above 50 years and as shown in Table (1). The possible causes of hematospermia are listed in the Table (2). Thirty-six patients (33.9%) were clinically diagnosed as chronic prostatitis (deep pelvic pain, difficult and painful micturition, perineal pain and discomfort or recurrent cystitis) with or without positive seminal fluid culture. Only one patient had severe hypertension (200/110) and was diagnosed as renal impairment due to bilateral chronic pyelonephritis. Two patients had a single episode of hematospermia one month after epididymal cyst surgery. Investigations in four patients revealed thrombocytopenia with level less than 70000/μL.

Another two cases were known cases of sickle cell anemia on regular treatment. Two cases were on oral warfarin for the last two years due to chronic heart disease. One case was presented with lower abdominal pain with hematuria in addition to hematospermia and ultrasound and x-ray showed 3cm vesical stone and no other attack following removal of stone. In half of the cases (53) there were no clear identified cause. Four cases were having prostate cancer, one of them was diagnosed during assessment and the other three were known to have cancer and were on treatment. lastly one case was diagnosed with prostate cyst.

24 cases (22.6%) developed more than one episode of hematospermia; of theses, 16 cases were in chronic prostatitis group, two cases were due to thrombocytopenia, 2 cases due to sickle cell anemia, one case with prostate cancer, and 3 cases were from unidentified group as in Table (3). All cases followed for six months.

Table (1): Age distribution of patients with hematospermia

Age	Number	Percentage
< 40years	56	52.8%
41-50 years	32	30.2%
>50 years	20	18.8%

Table (2): Aetiology of hematospermia in 106 patients

Diagnosis	Number	Percentage
Prostatitis	36	33.9%
Prostate cancer	4	3.7%
Prostate cyst	1	0.94%
Severe hypertension	1	0.94%
History of epididymal surgery	2	1.88%
Thrombocytopenia	4	3.77%
Vesical stone	1	0.94%
Sickle cell anaemia	2	1.88%
Anticoagulant therapy	2	1.88%
Unidentified cause	53	50%
Total	106	

ORIGINAL RESEARCH
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Table (3): Patient with recurrent episodes of hematospermia

Diagnosis	Number
Prostatitis	16
Thrombocytopenia	2
Sickle cell anemia	2
Prostate cancer	1
Unidentified cause	3
Total	24

Digital rectal examination of the patients revealed benign looking prostate gland except in two cases; one is already diagnosed as prostate cancer and the other one revealed two hard nodules.

Ultrasound examination revealed one patient with prostatic cyst and another one with vesical stone. PSA was within normal in all cases except being 28ng/ml in one patient which, the later sent for trans-rectal ultrasound guided biopsy which revealed adenocarcinoma of prostate.

Seminal fluid examination and culture was positive for bacterial infection in 22 cases with Escherichia coli, Klebsiella, Proteus mirabilis, Chlamydia trachomatis and Neisseria gonorrhoeae being the most common organisms involved. Cystoscopy was done in 8 cases; it was normal in six cases. Depending on the age of the patients, 40 (74.07%) samples are below 40 years old, and the rest 14 (29.6%) are above 40 years old, as shown in Table (3).

Discussion

Because hematospermia is uncommon, the primary medical personnel have little experience with such condition and is unable to reassure the patient or exclude malignancy. On the other hand, the published data on causes and etiology of hematospermia are not adequate, limited, and have completely different results which make the patient more anxious about the cause and diagnosis [1].

cases, while it revealed urethral stricture in one case and vesical stone in one case.

All cases with prostatitis were treated with long term antibiotic for 4-6 weeks by levofloxacin or ciprofloxacin or according to culture results of the seminal fluid. In cases with recurrent episodes, finasteride or dutasteride tab. were added for three months.

Prostatic cyst treated by an endoscopic de-roofing with no further attacks of hematospermia. Patients diagnosed with prostate cancer were referred to the oncologist, while those with thrombocytopenia or sickle cell anemia were referred to a clinical hematologist. The patient with vesical stone was treated by endoscopic laser lithotripsy. All cases with unidentified cause were treated symptomatically.

Any patient presented with hematospermia should be properly evaluated clinically and with laboratory investigations and then with radiological imaging for proper identification of the cause and source of bleeding especially in those patients above the age of 50 where the possibility of diagnosing cancer increased [1,2].

By knowing the anatomy and function of the ejaculatory apparatus, we can suspect the source of hematospermia to be from any part of this apparatus like the prostate gland, seminal vesicles, epididymis, ejaculatory ducts, and urethra [3,4,5].

ORIGINAL RESEARCH
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On the other hand, hematospermia could result from bleeding tendency disorders just like bleeding from other sites like hematuria or gastro-intestinal bleeding that can be caused by systemic diseases or bleeding tendency that may be due to coagulative disease or drugs like anticoagulants [6,7,8].

Recurrent episodes of hematospermia are more likely to occur in cases diagnosed as chronic prostatitis and patients with blood and coagulative disorders. For those with chronic prostatitis, the possible causes are difficult to treat and more likely to present with recurrent attacks after treatment. Cases with blood and coagulative disorders are difficult to control and even if treated, the treatment will be not curative as in cases of sickle cell anemia and thrombocytopenia [9].

A previous study showed that prostate carcinoma was the cause of hematospermia in 13% of men screened for prostate cancer and this may be the reason why they thought that hematospermia means prostate cancer. However, the sample in this study were men above 50 years who screened for prostate cancer or diagnosed with prostate cancer, so the result of this study cannot be reflected to young men presented with hematospermia [10,11].

Other study done in Sri Lanka on 94 patients revealed corresponding result for prostate cancer being only diagnosed in one patient. On the other hand, one third of the cases, hematospermia was due to prostatitis and near half of cases were with unidentified cause [12].

In our study, out of 106 cases with hematospermia, only four cases (3.8%) have prostate cancer; three of them were already diagnosed with prostate cancer and only one case (less than 1%) was newly diagnosed with cancer which was already suspected for cancer because of his age (68years) and suspicious digital rectal examination with elevated PSA level [13,14,15].

Comparing our study with different other studies done in different countries, our study revealed that there are other causes for hematospermia, other than those mentioned in our study, most of them are rare like adenocarcinoma of seminal vesicle, cytomegalovirus, seminal vesicle stone, leukemia, lymphoma, chronic liver disease, metastatic melanoma and others. This is why further studies are needed for better classification of the etiology of hematospermia [16,17,18].

The etiologies appeared to be benign when hematospermia occurred with normal clinical findings and normal PSA level. In addition, most of cases were below 50 years' age. Also, the cause is not settled or identified in half of the cases and most of them treated symptomatically with simple therapeutic measures. Therefore, the clinician can confidently reassure those patients presented with hematospermia with normal clinical and laboratory findings [17,18,19].

Further complicated investigations like CT urography, MRI, and cystoscopy are required only in those patients with positive clinical or laboratory finding. On the other hand, those patients below 50 years of age where hematospermia is more common there is no need for further complicated investigation [18].

Conclusions

Hematospermia is mostly a symptom of benign disease and usually occurred in young men below 50 years. Most cases can be

ORIGINAL RESEARCH
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treated easily according to the diagnosis and empirically treated in cases with unidentified cause and do not recur. Specialist can reassure the patient and confidently say is due to benign disease and the incidence of detection of prostate cancer is very rare.

Recommendations

We recommend that any patient presented with hematospermia should be refereed to urologist for further evaluation, at the same time we shave to reassure the patient that the most common causes are benign and rarely are due to malignancy and only we suspect malignancy in older patient.We need further studies with larger data in different area in Iraq.

Source of funding: The current study was funded by our charges with no any other funding sources elsewhere.

Ethical clearance: Ethical approval was obtained from ethical committee at college of medicine / Hawler Medical University.

Conflict of interest: Nil

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Diyala Journal of Medicine

ORIGINAL RESEARCH
Published: 30 October 2023
Doi: 10.26505/DJM.25017131211

اسباب ونتيجة القذف الدموي:دراسة مستقبلية

ميسر كريم هدايه [1]

الملخص

خلفية الدراسة: بالرغم من كون القذف الدموي حاله غير شائعه الا انها تعتبر احد الاعراض المقلقه للمريض والطبيب. وسبب هذا القلق هو ربطها بسرطان البروستات من قبل الكثير من المرضى وحتى العاملين في المجال الصحي والطبي.
اهداف الدراسة: لتصنيف اسباب القذف الدموي.
المرضى والطرائق: دراسة مستقبلية للحالات الجديده من القذف الدموي والمشخصه في العياده الخاصه ولمده اربعه سنوات ,تم توثيق المعلومات الخاصه بالمرضى من خلال التوزيع الجغرافي ,الاعراض ,الفحوصات المجراة , و العلاج المعطى ومتابعه النتائج لمده سته اشهر من تاريخ التشخيص.
النتائج: تم تشخيص 106 حالات من االقذف الدموي في العياده الخاصه . اعمار المرضى تتراوح بين 25-70سنه . 36 حاله اي ما يقارب ثلث الحالات تم تشخيصها التهاب البورستات المزمن من خلال الاعراض واجراء زرع للسائل المنوي. اربعه حالات كانت لسرطان البيروستات ثلاث حالات منها مشخصه سابقا وحاله واحده جديده. اربع حالات تم تشخيصها بنقص الصفيحات الدمويه .حالتين تم تشخيصها فقر الدم المنجلي. حالتين كانت بسبب عمليه قناه البربخ. وحالتين كان المريض يتناول ادويه مضاده للتخثر. وحاله واحده لكل من ارتفاع ضغط الدم,حصاه المثانه, وكيس داخل اليروستات . اما يقيه الحالات وهي 53 حاله لم يتم تحديد اي سبب للقذف الدموي.
الاستنتاجات: اغلب حالات القذف الدموي كانت تحت سن الخمسين وكانت اغلب الاسباب حميده وتتحسن تدريجيا. اقل من 1% من الحلات كانت بسبب سرطان اليروستات. لذلك يمكننا ويشكل اكيد ان نطمئن المريض المصاب باعراض القذف الدموي انها لاسباب حميده وليست سرطانيه وخاصه للاعمار الاقل من 50سنه.
الكلمات المفتاحية: دموية النطاف، سرطان البروستات ، التهاب البروستات ، السائل المنوي، نقص الصفيحات
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تاريخ استلام البحث: 11 كانون الاول 2022
تاريخ قبول البحث: 13 آيار 2023

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