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Hematuria and dietary supplements – A case report on pronounced bleeding following a minimally invasive urological intervention in a patient on long term garlic supplements

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ABSTRACT

This report focuses on a patient encounter with suspected significant hematuria post operation occurring primarily due to garlic supplementation.

A 65-year-old male underwent day case PVP. He had significant hematuria post operation requiring added use of bipolar coagulation. He was fit and well with no other past medical or drug history apart from dietary supplementation of garlic extracts.

There are various mechanisms that components of garlic like allicin can produce antiplatelet effect on blood. This represents a novel case of unexpected bleeding in patient strongly attributed to dietary supplements for a less invasive technique with better hemostatic profile like PVP.

1. Introduction

The last three decades have seen the use of complementary and alternative medicines (CAMs) grow from strength to strength in the UK, with surveys estimating its availability grow from 1 in 8 to 1 in 2 GP practices in some parts of England.¹ Considering this growing trend, this report focuses on a patient encounter where we suspect significant bleeding and hematuria occurred because of him being on garlic supplementation.

2. Case presentation

The patient in his 60s underwent elective green light laser photovaporisation of prostate (PVP) with the GreenLight 532-nm laser (Boston Scientific Corporation, Marlborough, MA, USA) in day surgery by a consultant urologist following signs of bladder outlet occlusion in check flexible cystoscopy prior to his procedure. His prostate was measured at around 33 cc during cystoscopy. Apart from occasional alcohol intake (roughly 2 units weekly), no other relevant medical history was noted in his pre-operative workup or previous communications in clinic. During his procedure, a good channel around his prostate was obtained using laser, with bipolar roller ball diathermy used to obtain good hemostasis

transurethraly. No initial concerns were noted in theatre recovery with patient passing good volumes of urine through the 18Fr 2-way catheter inserted post procedure, with limited rose tinting observed in urine. However, this quickly changed whilst patient was in recovery bay, with severe hematuria and clots noted from nursing staff requiring patient to be kept in overnight for monitoring. A new 3-way catheter was inserted to allow continuous slow irrigation to improve his hematuria. This scenario is unusual for patients undergoing PVP at our center, even those taking regular anticoagulants. It was during this time a specific staff query revealed his significant intake of garlic supplements over the last 3–4 years. The patient had continued garlic intake until the day of his surgery. His intake of the supplements varied widely depending on the supply he could find, ranging between 300mg and 900mg per capsule in strength and taking between 1 and 6 capsules a day in quantity. The patient was quoted to also be consuming large amounts of raw and cooked garlic as part of his regular Mediterranean diet. Thankfully, the patient's hematuria resolved with planned irrigation, and he returned home the next day after a successful trial without catheter (TWOC). No further significant hematuria episodes were noted following discharge – with good improvements in his urinary stream noted on follow up 3 months later. The only event since of note in patients' records was presentation to the emergency department with PR bleeding around 1

abbreviations: Laser photovaporisation of his prostate, PVP.

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year following his procedure due to new diverticular disease (confirmed on colonoscopy).

3. Discussion

Over the years, PVP has emerged as an excellent minimally invasive alternative compared to conventional bipolar transurethral resection of the prostate (TURP) for treating benign prostate hyperplasia (BPH) – with meta-analysis confirming the same benefit in improvement of flow rates and quality of life despite less incidence of bleeding, TUR syndrome and inpatient stay in hospital.²

Garlic (*allium sativum*) is a popular CAM dietary supplements for patients seen in anesthetic pre-assessment. Its active ingredient (thio-sulfinates) forms when garlic is chopped, crushed and/or eaten. There are many thiosulfinates found in allium vegetables, the main one being allicin which is responsible for the pharmacological activity of garlic. Allicin has an antiplatelets and anticoagulant effect by interfering with cyclo-oxygenase mediated thromboxane synthesis, while other garlic constituents also have anti-thrombotic effect.

Various studies over the years have supported and suggested various mechanisms this can occur. The most recent in our searches demonstrated garlic can increase the quantity of nitric oxide intracellularly, which is a potent inhibitor of platelet aggregation.³ Another study also accounted for this in various preparations of garlic products available commercially, as well as discrepancies between raw and boiled extracts.⁴ Notably in this study, the bioavailability of allicin in garlic powder supplements was found to be as high as equivalent amounts of crushed garlic. Research arguing against the effect of garlic has been noted. However, there are major limitations in methodology, including shortened assessments of platelet function (only observed within hours to 1 week following consumption), as well as varying dosages of garlic supplementation in patients.⁵

At time of writing this represents a novel case of unexpected bleeding in a patient strongly attributed to dietary or herbal supplements for a supposed less invasive technique with a better hemostatic profile like PVP. Other aspects of the patients past medical history fail to suggest any alternative causes for his increased bleeding risk.

There are limitations to be highlighted with this report. Our patient does not appear have a history of bleeding diathesis, but certainly a detailed family history could have been taken to uncover any underlying inherited bleeding disorders. Further investigations using ISTH- BAT (bleeding assessment tool) ± platelet function assay was not opted at the time. Details from these assessments would have contributed to more discussion on a haematological level.

The metabolism of allium sativum is complex and there are many confounding factors contributing to the quantity of allicin in the body. This includes the preparation of allium sativum, the environment where absorption and metabolism occur, and the quantity of various thio-sulfinates that work both in synergy and in its inhibitory effects. This may account for discrepancies seen in the supporting literature. User/individual bias is another aspect that is difficult to moderate in surgery, with appropriate atraumatic handling of the cystoscope used, good laser fiber to tissue distance (1–3mm away from tissue) and power settings of the laser having possible effects of increased bleeding risk with PVP.

4. Conclusion

Our case report brings to light a significant bleeding risk of CAM dietary supplementation (in the form of garlic extracts), even in a novel less invasive urological procedure with a stronger hemostatic profile. Medicating with garlic supplements is becoming ever more common and popular, with current literature implying additional research is warranted to investigate the antiaggregatory effects of garlic. Our case report emphasizes the importance of detailed questioning regarding herbal medication during operative pre assessment to predict and reduce bleeding peri and post-operatively.

Author contributions

AN: Conceptualization, Methodology, Writing- Original draft preparation, Software, Reviewing and Editing.

SKS: Conceptualization, Supervision, Writing- Reviewing and Editing.

SS: Writing- Reviewing and Editing.

BA: Writing- Reviewing and Editing.

Declaration of interest

The authors declare that they have no conflicts of interest.

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