American Journal of Case Reports

e-ISSN 1941-5923
© Am J Case Rep, 2018; 19: 836-838
DOI: 10.12659/AJCR.908117

Received: 2017.11.19
Accepted: 2018.04.06
Published: 2018.07.17

Possible Drug-Nutraceutical Interaction Leading to Unexpected Sequelae After Inguinal Hernia Repair

Authors' Contribution:
Study Design A
Data Collection B
Statistical Analysis C
Data Interpretation D
Manuscript Preparation E
Literature Search F
Funds Collection G

DEF 1 Matthew R. Smith
DEF 2 Carl Faingold
DEF 1 John D. Mellinger

1 Department of Surgery, Southern Illinois University (SIU) School of Medicine, Springfield, IL, U.S.A.
2 Department of Pharmacology, Southern Illinois University (SIU) School of Medicine, Springfield, IL, U.S.A.

Corresponding Author: Matthew Smith, e-mail: msmith52@siumed.edu
Conflict of interest: None declared

Patient: Male, 74
Final Diagnosis: Penile hematoma
Symptoms: Inguinal pain • swelling
Medication: —
Clinical Procedure: Open right inguinal hernia repair
Specialty: Surgery

Objective: Unexpected drug reaction

Background: Nutraceutical formulations are an area in which physicians should be increasingly aware of their side effects. This case study shows the adverse effects that ginkgo biloba can have when combined with tadalafil following an inguinal hernia repair.

Case Report: A 74-year-old male presented for repair of a recurrent inguinal hernia and for which the procedure was performed without complication. Upon follow-up, it was noted that he had significant ecchymosis not only in the inguinal region but in the ventral aspect of his penis. Upon further questioning, he reported that he had been taking ginkgo biloba that was stopped 5 days prior to the operation and restarted postoperative day 1. This, combined with tadalafil, was thought to be the reason for the unexpected induration and ecchymosis at the shaft of the penis. After discontinuing both medications, the ecchymosis and induration did resolve.

Conclusions: While ecchymosis and induration are expected in the inguinal region, the appearance of significant ecchymosis and induration down the shaft of the penis was unexpected in this case, and therefore we thought it could be due to nutraceutical use of ginkgo biloba combined with tadalafil, which were started postoperatively.

MeSH Keywords: Dietary Supplements • Ginkgo Biloba • Hernia, Inguinal

Full-text PDF: https://www.amjcaserep.com/abstract/index/idArt/908117

Indexed in: [PMC] [PubMed] [Emerging Sources Citation Index (ESCI)] [Web of Science by Clarivate]

Background

Nutraceutical reactions are an area in which physicians should become increasingly aware. This case involved a male who underwent an inguinal hernia repair. Following that repair, he had a hematoma on the ventral aspect of his penis which could have been caused by his subsequent use of tadalafil and ginkgo biloba. Postoperative hematoma surrounding the incision site and inguinal area is common. However, hematoma formation away from the surgical site, in the ventral aspect of this patient's penis, was unexpected and could be explained based on the effects of the ginkgo on clot formation in conjunction with the vasodilating effects of the tadalafil.

Case Report

A 74-year-old male with a history of myasthenia gravis, hypertension, celiac disease, irritable bowel syndrome, and benign prostatic hyperplasia, as well as previous open inguinal hernia repair bilaterally, presented with pain in his right hip and groin. On physical examination, he was found to have a recurrent right inguinal hernia. After a review of options, the patient elected for an open repair under local anesthetic with monitored anesthesia care, due to his prior problems with general anesthesia related to myasthenia. At the time of surgery, extensive dissection was required in the inguinal canal to remove a prior displaced mesh before the hernia was able to be fully defined and repaired. Once the previous mesh was removed, a pantaloon hernia was observed with some exposed bowel and the appendix visualized through the indirect component. A Lichtenstein technique was used to repair the defect with an 8×15 cm piece of Parietex mesh, and the procedure was completed without complication. Initial recovery was unremarkable, and the patient returned home the same day as that of the procedure. There were no problems with urinary retention, no Foley catheter placement, and no direct manipulation or trauma to the penis involved in the case or perioperative period. The patient was prescribed oral oxycodone with acetaminophen initially for pain control, and subsequent pain was treated with acetaminophen 500 mg, 4 times per day as needed. On postoperative day 2, the patient noticed some ecchymosis and induration that seemed out of proportion to his previous repairs, particularly involving the penile shaft. He returned to clinic due to these concerns on postoperative day 4, and it was noted on physical examination to have general ecchymosis of the penis and scrotum as well as focal ecchymosis and swelling consistent with hematoma on the ventral aspect of the penile shaft (Figure 1). The ecchymosis and hematoma appeared similar to those seen with patients on anticoagulation, however, the patient denied use of any anticoagulants.

Figure 1. Hematoma of the ventral penile shaft in clinic on postoperative day 4 following an open inguinal hernia repair.

Upon further investigation, the patient noted that he had been taking the over-the-counter nutraceutical ginkgo biloba extract (60 mg daily) which had been discontinued 5 days prior to surgery but restarted the day after the operation. In addition, the patient had also been taking tadalafil (5 mg daily) for benign prostatic hypertrophy. After discontinuing the ginkgo biloba and tadalafil, the patient's ecchymosis and swelling gradually and steadily improved, and no further intervention was required. He continued to recover with an intact repair and no evidence of residual hematoma on longer term follow-up.

Discussion

Ginkgo biloba extract is an alternative health care product that is marketed as a supplement to improve mental alertness, but this agent has long been implicated in spontaneous bleeding episodes, especially with higher doses and as an interaction with anticoagulants and antiplatelet agents [1]. Nutraceutical and alternative medicine use has been increasing in popularity over the past 10 to 15 years. A study published by Kaye et al. found that over 32% of patients in the ambulatory surgery setting admitted to using herbal medications, however, over 70% of these patients did not disclose these medications on their preoperative visit [2]. A nutraceutical such as ginkgo biloba has previously been suggested to pose a potential risk for bleeding during the perioperative period due to direct pharmacodynamic and pharmacokinetic effects, including having synergistic effects with other agents and having a direct effect on platelet-activating factor [1,3].

A review of nutraceutical-drug interactions indicated that there was evidence of moderately severe interactions with ginkgo biloba, most commonly with antiplatelet agents and anticoagulants, specifically warfarin [4].

Indexed in: [PMC] [PubMed] [Emerging Sources Citation Index (ESCI)] [Web of Science by Clarivate]

A case report of laparoscopic cholecystectomy in a patient taking gingko biloba described unexpected spontaneous bleeding [5]. Another case report described persistent postoperative bleeding following total hip arthroplasty without obvious other cause in a patient taking ginkgo biloba extract. Four weeks after surgery the nutraceutical was discontinued, and the bleeding stopped 6 weeks later [6].

Tadalafil (Cialis) is a selective phosphodiesterase (PDE) type 5 inhibitor that is administered orally for the treatment of male erectile dysfunction, pulmonary arterial hypertension, benign prostatic hypertrophy (BPH), or the concurrent treatment of erectile dysfunction and BPH [7]. A study by Kim et al. showed a synergistic relaxation effect between ginkgo biloba and a PDE-5 on the corpus cavernosum of rabbits, *ex vivo*. The study showed that ginkgo biloba could cause added tissue relaxation potency in response to mirodenafil, even at minimally effective doses [3].

The effect of ginkgo biloba on PDE5 tissue relaxation accompanied by the effect the nutraceutical has on spontaneous bleeding makes it plausible that the cause of the extensive ecchymosis and penile shaft hematoma noted in the case we described was related to the synergistic effects of these 2 medications.

Conclusions

In conclusion, the increasing use of nutraceuticals by patients alongside prescribed medications during the perioperative period is important for medical personnel to be cognizant of in order to prevent, recognize, and treat potential problems that may arise, such as those demonstrated in this case.

Conflicts of interests

None.

References:

1. Ang-Lee MK, Moss J, Yuan CS: Herbal medicines and perioperative care. JAMA, 2001; 286(2): 208–16
2. Kaye AD, Clark RC, Sabar R et al: Herbal medicines: Current trends in anesthesiology practice – a hospital survery. J Clin Anesth, 2000; 12: 468–71
3. Kim JJ, Han DH, Lim SH et al: Effects of Ginko biloba extracts with mirodenofil on the relaxation of corpus cavernosal smooth muscle and the potassium channel activity of corporal smooth muscle cells. Asian J Androl, 2011; 13: 742–46
4. Posadzki P, Watson L, Ernst E: Herb interactions on overview of systematic reviews. Br J Clin Pharmacol, 2013; 75(3): 603–18
5. Fessenden JM, Wittenborn W, Clarke L: Gingko biloba: A case report of herbal medicine and bleeding postoperatively from a laparoscopic cholecystectomy. Am Surg, 2001; 67(1): 33–35
6. Bebbington A, Kulkarni R, Roberts P: Ginkgo biloba: Persistent bleeding after total hip arthroplasty caused by herbal self-medication. J Arthroplasty, 2005; 20(1): 125–26
7. Uckert S, Kuczyk MA, Oelke M: Phosphodiesterase inhibitors in clinical urology. Expert Rev Clin Pharmacol, 2013; 6(3): 323–32

Indexed in: [PMC] [PubMed] [Emerging Sources Citation Index (ESCI)] [Web of Science by Clarivate]