

The ginseng pimple: an inflammatory papule following ginseng consumption

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Abstract

Ginseng is a popular herbal remedy derived from the plant roots of the *Panax* genus and has been used in traditional Asian medicine for thousands of years. In the United States, it has become increasingly popular and is taken for many conditions, including as an immune enhancer. Cutaneous adverse effects have been reported to occur following ginseng consumption, although detailed clinical descriptions are limited. A 60-year-old woman who repeatedly developed inflammatory papules following ginseng consumption is described and the characteristics of ginseng use in healthcare are reviewed.

Keywords: ginseng, herbal, inflammatory, medicine, papule, pimple

Introduction

Ginseng is an herbal remedy derived from the root of the *Panax* genus that has been used in Eastern Asia for over two thousand years. It is often taken to enhance immunity, prevent cancer, and improve sexual and cognitive function. Adverse effects associated with ginseng consumption include nausea, diarrhea, insomnia, headaches, and hypertension (Box 1), [1-10]. Cutaneous side effects to ginseng have been reported, although these are poorly described in the literature. We report a 60-year-old eastern Asian woman who developed an inflammatory papule, the ginseng pimple, that erupted following ginseng consumption and summarize the uses and adverse events of ginseng in medicine.

Case Synopsis

A 60-year-old eastern Asian woman with a past medical history of gastroesophageal reflux disease and hypercholesterolemia presented with an incidental finding: an erythematous, inflammatory 1 centimeter papule on the left jaw (Figures 1, 2). She revealed that two weeks prior, she developed upper respiratory infection symptoms for which she drank ginseng herbal tea. Two days later, she developed the papule. This occurred previously whenever she drank ginseng tea. Invariably, she would develop inflammatory papules on her face within two days that were often accompanied by oral aphthae. The woman did not have a history of acne as a child, adolescent, or adult. She only developed 1-3 acne lesions following exposure to ginseng. She reported re-challenging herself more than 10 times over



Figure 1. An inflammatory papule on the left jaw of a 60-year-old east Asian woman that developed two days after ingesting a ginseng herbal tea beverage.



Figure 2. Closer view of an inflammatory papule that appeared on the left jaw of a 60-year-old east Asian woman two days after drinking a ginseng herbal tea beverage.

several years and with each re-challenge she again developed inflammatory papules.

Although the woman was advised to avoid ginseng, she continued to drink ginseng herbal tea to remedy subsequent upper respiratory infections. Indeed, on each occasion, she developed new ginseng-associated inflammatory facial papules.

Case Discussion

Ginseng is a popular herbal remedy that has been used in traditional Asian medicine for over two thousand years [2]. It is derived from the roots of plants from the *Panax* genus, the most common of which being Asian ginseng (*Panax ginseng*). The name panax derives from “panacea,” reflecting its broad use in traditional medicine. It is used as an “adaptogen” to improve resistance to physical, chemical, and biologic stress [1]. Today, it is the third most popular herbal product in the United States [2].

Ginseng is commonly consumed for its immune-enhancing properties, as was the case in our patient who used a ginseng herbal tea to combat cold-like symptoms (Box 1), [1-10]. Ginsenosides, the main constituent in ginseng, have been demonstrated to improve natural killer cell activity, increase T-helper cell number, enhance phagocytosis of macrophages, and improve antibody production [3]. Ginseng has been shown to improve bacterial clearance rates in patients with acute exacerbation of chronic

Ginseng adverse effects

Bleeding: nosebleeds, vaginal bleeding

Dermatologic

Alopecia

Angioedema

Bullous eruption

Dermatitis

Erythema multiforme

Inflammatory papule

Pruritus

Stevens-Johnson syndrome

Unspecified rash

Urticaria

Vasculitis

Diarrhea

Euphoria

Headache

Hypertension

Insomnia

Nausea

Ginseng contraindications

Acute asthma

Acute infections

Excessive bleeding: nosebleeds or menstruation

Hypertension

Pregnancy

Ginseng drug-interactions

Caffeine

Monoamine-oxidase inhibitors (Rasagiline)

Phenelzine

Pramipexole

Sildenafil

Warfarin

Ginseng uses

Anti-cancer properties

Cognitive and mood improvement

Dermatologic: alopecia, anti-wrinkle, dermatitis, skin cancer, wound healing

Erectile dysfunction

Immune enhancement

Physical performance

Type 2 diabetes

Box 1. Healthcare-associated properties of ginseng.

bronchitis when combined with antibiotics [1]. In addition, daily administration of ginseng extract in healthy human volunteers improved polyvalent influenza vaccination efficacy by increasing antibody titer levels and improving natural killer cell activity [1].

Ginseng is also commonly taken for its anti-cancer effects. Ginsenosides have been shown to inhibit cell-cycle progression and prevent tumor cell

proliferation [3]. Studies examining the long-term use of ginseng in Korea reported that patients using ginseng had significantly decreased risks of developing cancer of the respiratory tract, gastrointestinal tract, liver, pancreas, and ovaries [2]. However, four randomized controlled trials testing the short-term effects of ginseng found no improved immune response or nutritional status as treatment for gastric and colon cancer [4].

Other reported uses for ginseng include enhancing mood and cognitive function, improving erectile dysfunction and sexual arousal, ameliorating hypercholesterolemia, improving physical performance, and decreasing type 2 diabetes [1, 2, 4]. However, the effectiveness of ginseng in these conditions is poorly established. Although positive effects have been demonstrated with in vitro and in vivo models for some of these conditions, human studies are largely non-existent or equivocal.

Within the field of dermatology, ginseng has been investigated for use in aging, wound healing, skin cancer, dermatitis, hair loss, and cold hypersensitivity owing to its anti-inflammatory and antioxidant properties. *P. ginseng* has been shown to decrease reactive oxygen species and matrix metalloproteinase levels in ultraviolet-irradiated dermal cells, and enhance hyaluronic acid production in keratinocytes. Human studies have shown the efficacy of *P. ginseng* alone or in conjunction with other herbal extracts as a topical anti-wrinkle agent to improve skin texture. In wound healing studies, ginseng improved cutaneous healing following burn injuries in mice [5].

Ginseng is generally well-tolerated, although few controlled studies exist. The most commonly reported adverse effects include bleeding, diarrhea, euphoria, headaches, hypertension, and nausea (Box 1), [1-10]. A randomized, controlled study involving healthy volunteers in Korea found no difference in adverse effects between placebo and ginseng treatment groups after four weeks of ginseng use [6]. A two-year follow-up of patients with frequent ginseng consumption reported the following adverse effects: morning diarrhea (35%), skin eruptions (25%), nervousness (25%), sleeplessness (20%), and hypertension (17%);

amenorrhea, decreased appetite, depression, edema, and hypotension combined were reported in 10% of patients [7]. However, this study did not include a control group, nor was the dosage or species of ginseng standardized among patients. Current recommendations for *P. ginseng* consumption by the German Commission E are 1-2 grams per day. Adverse effects may occur when consuming greater than 3 grams of ginseng per day and depression and confusion may occur in those consuming over 15 grams daily [8].

Cutaneous adverse effects related to ginseng use include alopecia, angioedema, bullous eruption, dermatitis, erythema multiforme, pruritus, Stevens-Johnson syndrome, unspecified rash, urticaria, and vasculitis (Box 1), [1-10]. In the two-year follow-up study by Siegel et al., 25% of individuals developed cutaneous eruptions that were corroborated by physical examination [7]. However, the precise presentation and location of these lesions were not described. They occurred an average of three weeks after consistent ginseng use. In our patient, an inflammatory papule developed two days after ginseng consumption. As the use of ginseng continues to increase, both as an over-the-counter herbal remedy and as a tentative future cosmeceutical, it is imperative that we improve our understanding of the potential cutaneous effects associated with ginseng.

Ginseng should be taken with caution in conjunction with other medications owing to the potential for drug interactions (Box 1), [1-10]. Although it has been reported to cause bleeding (nosebleeds and vaginal bleeding), it has also been shown to impair the anticoagulant effects of warfarin by decreasing the international normalized ratio [9, 10]. There have also been reports of tremulousness, nervousness, and mania in patients concurrently taking monoamine-oxidase inhibitors, phenelzine, and sildenafil [1, 9, 10]. Contraindications to ginseng use include acute asthma, acute infections, excessive nosebleeds or menstruation, hypertension, and pregnancy. It should also be used with caution in patients with diabetes as it may lead to hypoglycemia and interact with diabetic medication [1].

Conclusion

Ginseng is a popular over-the-counter herbal remedy that is taken frequently by individuals in an unregulated manner; however, its potential use in medicine as a future therapeutic agent is anticipated to increase. Ginseng can be used as an agent to enhance the immune system, to decrease the risk of cancer development, and to improve mood and cognitive abilities. In dermatology, it is being investigated for use in anti-aging and wound healing. Although ginseng is generally well-

tolerated, few large-scale controlled studies exist investigating ginseng-related adverse effects. Prior reports of cutaneous adverse effects include nonspecific skin eruptions and rashes. We described a 60-year-old woman who developed inflammatory papules two days following each episode of ginseng consumption. Therefore, it is important not only for health care professionals but also for patients to be aware of the ginseng-related cutaneous manifestations that may be adversely associated with its use.

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