

Gynaecomastia and the Herbal Tonic "Dong Quai"

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ABSTRACT

We present a case of a man who developed gynaecomastia after ingestion of "Dong Quai" pills. "Dong Quai" is the Chinese name for the herb *Angelica polymorpha var. sinensis* which is widely used as a panacea for gynaecological problems, and it is also proclaimed as an invigorating tonic for both women and men. The pharmacological effects of "Dong Quai" are likely related to the phytoestrogen that it contains. This report highlights the potential adverse effects associated with its consumption in the male, especially for the processed "Dong Quai" pills which may contain significantly higher levels of phytoestrogen than its original herbal product.

Keywords: *Angelica sinensis*, "Dong Quai", gynaecomastia, phytoestrogens

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CASE REPORT

A 35-year-old married man with two children, was referred for acute onset of pain and swelling of his breasts. On careful history, he had been taking "Dong Quai" pills daily for a month. He shared the pills which was originally bought for his wife, as the product label indicated its beneficial effects for both women and men. He was otherwise well and had no complaints of weight loss, galactorrhoea, visual disturbances, headaches or thyroid dysfunction. He had normal libido and sexual function. His medical history was significant for partial seizures secondary to a venous angioma in the distribution of the right middle cerebral artery. He has been on long-term treatment with phenytoin 360 mg and folate 5 mg daily, and he remains free of seizures for many years. He was not on anabolic steroids or other medications.

Physical examination revealed bilateral tender gynaecomastia with approximately 3 cm glandular tissue on either breast. He had fully developed male secondary sexual characteristics and his testes were of normal size (20 mls each) and consistency. He was clinically euthyroid. The rest of the findings were unremarkable.

Laboratory investigations showed normal complete blood counts, serum electrolytes, and liver function. Hormonal results were as follows: follicle stimulating hormone, 7.3 U/L (N: 1.2 - 8.1); luteinizing hormone, 4.0 U/L (N: 2.0 - 10.9); estradiol, 99.4 pmol/L (N: 22.0 - 161.0); testosterone, 26.8 nmol/L (N: 10.4 - 34.7); prolactin, 10.0 ug/L (N: 5.0 - 27.7); beta - human chorionic gonadotrophin, not detected; free thyroxine, 9.69 pmol/L (N: 10.0 - 20.0); and thyroid stimulating hormone, 3.16 mU/L (N: 0.49 - 3.77).

The patient discontinued the "Dong Quai" pills after review, and his gynaecomastia regressed completely when reviewed 3 months later.

DISCUSSION

We report a case of gynaecomastia temporally related to the oral ingestion of "Dong Quai", which regressed with discontinuation of the pill.

"Dong Quai" is the Chinese name for the herb *Angelica polymorpha var. sinensis*. This has been regarded by practitioners of traditional Chinese medicine (TCM) as the panacea for women's health. In the product label provided by our patient, it indicated "Dong Quai has been held in high esteem by the Chinese and other Asian cultures for many centuries. Women appreciate its feminine tonifying properties and men, too, may utilise its blood nourishing components" (Fig. 1). In



Fig. 1 Product label of the "Dong Quai" pill consumed by our patient.

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Chinese pharmacopoeia, it is indicated for the treatment of a whole spectrum of gynaecological conditions including pre-menstrual symptoms, dysmenorrhea, menorrhagia, and menopausal symptoms⁽¹⁾. Its use for curing period pains can be dated to the first years of the Christian era, as recorded in the Classic of Herbal Medicine. Interestingly, folklore of the Bai minority in South China recounted the origins of "Dong Quai" as a gift from a falcon to a diligent young man. It was written that "he broke off a root and ate it, whereupon his appearance became robust and his whole being invigorated"⁽²⁾. Besides, many other therapeutic properties have been ascribed to this all-purpose herb, which include blood purification, blood pressure lowering, lung function, antispasmodic effects and cholesterol lowering. In a study on porcine lung microsomal enzymes by Wang SR et al in 1993, it was reported to be better than aspirin in promoting blood circulation⁽⁴⁾. An animal perfusion study by Chen SG et al in 1995 postulated the cardioprotective effect of intravenous extract of *Angelica sinensis*⁽⁵⁾. Unfortunately, such claims often lacked scientific evidence and a recently conducted double-blind, placebo-controlled trial by Hirata JD et al found that it was no more useful than placebo in relieving menopausal symptoms⁽⁶⁾.

The constituents of "Dong Quai" have been analysed to include ligustilide, butylidenphthalide, butyphthalide, ferulic acid, nicotinic acid and phytoestrogen⁽⁷⁾. Phytoestrogens such as isoflavones, coumestans and lignans exhibit weak estrogenic actions⁽⁸⁾. Plant lignans and isoflavones are metabolised in the human gastrointestinal tract to heterocyclic phenols structurally similar to estrogens. The biological potencies of these compounds vary, but the majority are much less potent (approximately 10^{-3} to 10^{-5} times less) than synthetic estrogens. Practitioners of TCM consider "Dong Quai" as a panacea for women's health because of its phytoestrogens. While it may theoretically benefit perimenopausal menopausal women with symptoms of oestrogen deficiency, its indiscriminate use in all

gynaecological conditions is scientifically unsound. This can be harmful in conditions where excessive oestrogen exposure is undesirable, as in women with menorrhagia from endometrial pathologies, and dysmenorrhea secondary to endometriosis. Like most herbal products, "Dong Quai" has become readily available over-the-counter in the form of pills or elixirs, as was consumed by our patient. This can lead to potentially more serious problems of toxicity compared to ingesting the raw herb, as the processed product may contain a concentrated amount of pharmacologically active constituents. Indeed, the rapid onset of gynaecomastia in our patient suggests exposure to significant levels of phytoestrogen from the "Dong Quai" pills. Furthermore, most product labels for "Dong Quai" pills, as in this case, advocate consumption by both women and men.

In conclusion, this report serves to highlight the toxicity of *Angelica sinensis*, a commonly sought after herbal tonic in our Chinese community. In particular, its use by men may be associated with feminisation due to its phytoestrogen content, especially in the processed form where the concentration of active ingredients may be significantly higher than in the original herb.

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