

# Deleterious effects of traditional Chinese medicine preparations on the course of psoriasis – a case report

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## Abstract

Psoriasis is a chronic, systemic and difficult to treat condition which negatively affects the patient's quality of life. Frustrated and unsatisfied with the conventional therapies, psoriatic patients start looking for alternative treatment which they believe to be safe and effective. Very common traditional Chinese medicine (TCM) appears to offer various topical and systemic herbal preparations, as well as massages, acupuncture, diet and lifestyle alternations. The presented study concerns a 48-year-old female patient with exacerbated psoriatic skin lesions (tending to become erythrodermic), and certain systemic complications that appeared after taking a TCM herbal medication, Fu Fang Qing Dai Wan, as well as the use of a Chinese herbal bath gel and staying on a diet rich in meat. After *in vitro* examinations were made of the herbal preparation and its biological properties determined, it was concluded that the TCM herbal preparation should not be considered harmless. Therefore, patients should be made aware of its adverse reactions.

## Key words

traditional Chinese medicine, Chinese herbs, psoriasis, adverse reaction

## INTRODUCTION

Psoriasis is a chronic disease with remissions and exacerbations that result from the activity of endogenous or exogenous factors. Since the therapeutic methods routinely used in the treatment of psoriasis are still far from perfect, i.e. they are usually time-consuming, burdensome and unpleasant, or may have side-effects, the patients, discouraged and frustrated, turn to alternative medicine in the hope to find a more effective treatment that could give rapid results. Traditional Chinese medicine (TCM) seems to be one of these options. Its proponents are convinced that carefully selected preparations, together with a proper diet and altered lifestyle, must bring satisfactory therapeutic results. Unfortunately, this thinking is based on the misconception that since herbal preparations are derived from natural sources, they must be safe for human use and free from undesirable effects [1, 2, 3].

## CASE REPORT

A 48-year-old female with severe, disseminated psoriasis tending to become erythrodermic sought medical assistance in the Department of Dermatology, Venereology and Paediatric Dermatology at the Medical University in

Lublin. The patient had a 30-year history of localized chronic plaque-type psoriasis with lesions on the knees, elbows and forehead. Previously her condition was rather stable and did not require any systemic treatment or hospitalization. Because of the long time presence of psoriatic plaques and lack of expected positive results following application of topical preparations, the patient decided to seek alternative treatment and finally resorted to Chinese herbal medicine. She was recommended to take Fu Fang Qing Dai Wan by mouth and the dose was specified as one unlabelled sachet (Fig. 1) of the herbal preparation three times daily. She also used some unlabelled herbal bath gel as well as staying on a special diet which consisted of daily rations of carbohydrates,



Figure 1. Commercial package of Chinese herbs available over the counter.

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eggs and large amounts of fat-rich meat (especially fatty pork that was to be eaten with the cooked pig skin).

The first adverse reactions started to appear in the patient about one month after initiation of this treatment and had to be admitted because of considerable aggravation of the pre-existing chronic psoriatic skin lesions as well as severe pruritus. She complained of malaise, asthenia, loss of appetite, abdominal pain, dyspepsia, nausea, had dark stools and lost 8kg within 1.5 months. She also reported painful and stiff knee joints. Following admission, she immediately stopped using the Chinese medicine preparations, and also discontinued the previously recommended diet.

Examination of the skin showed generalized, confluent, inflammatory psoriatic plaques with a tendency towards erythroderma (Fig. 2). The PASI score was estimated at 27.3 points. The oral mucosa was unaffected. Body mass



Figure 2. Severe psoriasis lesions on the skin.

index was calculated as 21.5 kg/m<sup>2</sup> (before the TCM treatment the BMI was 24.5 kg/m<sup>2</sup>).

Laboratory tests revealed mild anaemia with haemoglobin of 11.9 g/dL (N: 12.0–16.0 g/dL), which was not diagnosed before the TCM treatment. The patient's anaemia was microcytic (mean corpuscular volume: 78 fL, N: 80.0–94.0 fL) and hypochromic (mean corpuscular hemoglobin: 24.5 pg, N: 27.0–32.0 pg). The iron levels (22.0 µg/dL) were decreased (N: 37–145 µg/dL) and ferritin was also slightly lower (18.40 µg/L, N: 15–160 µg/L), while transferrin was slightly increased (3.7 g/L, N: 2–3.6 g/L). All these parameters indicated iron deficiency as a possible cause of the anaemia. The erythrocyte sedimentation rate was 30 mm / hour (N: 0–20 mm/hour). The serum level of β<sub>2</sub>-microglobulin (2.16 mg/L, N: 0.7–1.8 mg/L) and total IgE (>2500 IU/mL, N<100 IU/mL) were increased. A patch test with a mixture of the herbs found in the Fu Fang Qing Dai Wan preparation produced a negative result. Endoscopy of the upper gastrointestinal region detected a sliding hiatal hernia with a Z-line 4 cm above the diaphragm. The duodenal bulb mucosa was congested and oedematous. On colonoscopy, two small polyps were found and removed. Histopathological examination revealed hyperplastic polyps. A thyroid gland ultrasound revealed a hypo-echoic nodule in the left lobe. The patient was treated with a hydrocortisone

ointment and emollients, she also underwent a systemic therapy with antihistamines as well as pantoprazole and timonacic.

The condition of the skin lesions improved within two weeks which allowed application of the antipsoriatic therapeutics, such as tar and keratolytic ointments (Fig. 3). The haemoglobin and iron levels also improved (haemoglobin:

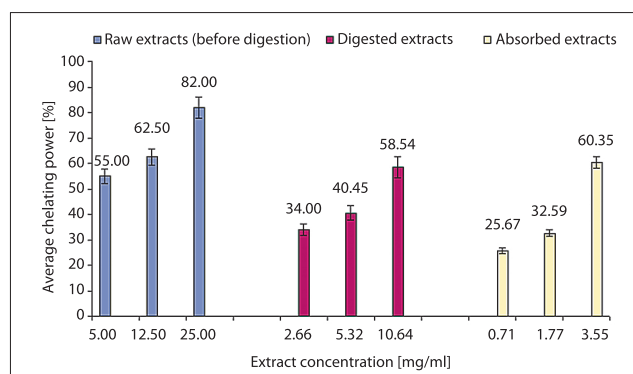


Figure 3. Relationship between extracts concentration and percentage of metal chelating activity.

13 g/dl, iron: 118.77 µg/dL both within normal ranges) with no iron supplementation, and the patient was discharged.

As iron deficiency was diagnosed, the chelating power of the herbal preparation, Fu Fang Qing Dai Wan, was examined *in vitro* with the use of the method of Guo et al.[4] Two kinds of Chinese herbs' extracts, with 50% methanol and with Phosphate Buffered Saline (PBS) buffer, for determination of lipophylic compounds and hydrophilic compounds activity, respectively, were prepared. In order to determine the bioaccessibility and bioavailability of the chelating-active compounds, simulations of digestion and absorption were performed following the procedures described by Tan et al. [5] and Elles et al. [6].

The lipophylic compounds extracted from the herbs had no chelating ability, whereas the hydrophilic compounds (extracted with PBS) showed a strong chelating power. This

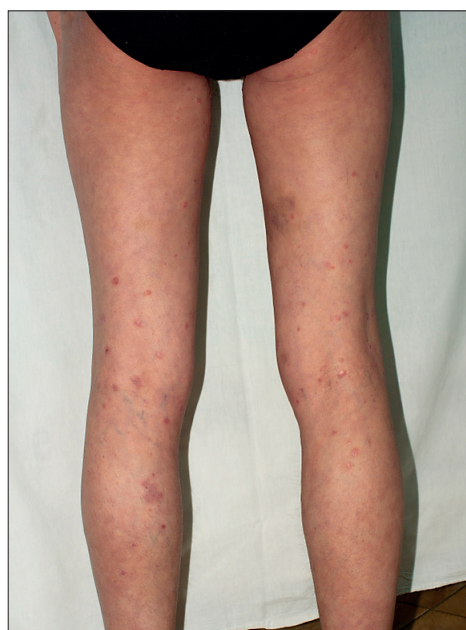


Figure 4. Patient's lower extremities following discontinuation of the herbal preparation.

chelating power of each extract correlated with the used dose at various concentrations (Fig. 4).

Half-maximal inhibitory concentration ( $IC_{50}$ ) was also calculated. The average  $IC_{50}$  for a raw extract (before digestion) was 2.13 mg/ml. A simulated gastrointestinal digestion caused a significant decrease in this activity – probably due to the pH conditions and interactions which occurred among the released compounds ( $IC_{50} = 7.95$  mg/ml). The chelating compounds must have had a high bioavailability, as they easily permeated through the dialysis membrane during the simulated intestinal absorption. The  $IC_{50}$  value of the fluid after the simulated absorption was similar to that determined for the PBS raw extracts (2.84 and 2.13mg/ml, respectively).

## DISCUSSION

Although the demand for TCM preparations among chronic psoriasis patients seems to be quite remarkable, the scientific evidence which would confirm their efficacy is scarce in Western medical journals. Almost all reports on the TCM preparations are published in the Chinese medical literature [7, 8].

Easy access to TCM preparations (available as OTCs) makes them popular among self-treating patients. Fleisher et al. [9] found that 51% of psoriatic patients opted to use alternative therapies; however, we are not able to specify how many of them have used the Fu Fan Qing Dai Wan preparation. Since they are often sold in unlabelled packages, TCM preparations may contain harmful ingredients or even dangerous toxins (e.g. pesticides, lead, mercury, arsenic, diazepam, thiazide diuretics, ephedrine and caffeine), of which the patients are often unaware of [2, 10, 11]. Various adverse reactions following the use of TCMs include hypersensitivity, hepatotoxicity, renal failure, adult respiratory distress syndrome, asthma, anaphylactic shock and cardiomyopathy, as well as skin disorders such as allergic contact dermatitis, allergic purpura or even toxic epidermal necrolysis [2, 3, 11, 12, 13]. Numerous herbal formulations contain psoralens, therefore, their use may favour photosensitivity [14].

The presented case is of great interest because it demonstrates exacerbation of the pre-existing psoriasis as well as blood morphology abnormalities that have never been explicitly presented previously in the literature before. Since the patient relied merely on the treatment recommended by Chinese medicine practitioners (without consulting her doctor) it is very likely that all the adverse reactions she experienced were connected with the used Chinese preparations. Yet, pinpointing the culprit is extremely difficult. It is unclear whether all the components of the used preparation had that undesirable effect or maybe it was merely one of them that brought about the adverse effect. Perhaps it was the diet adhered to by the patient, perhaps all of the above factors could be held responsible for the symptoms developed by the patient.

Fu Fang Qing Dai Wan herbs may be responsible for acute hepatitis, as documented by Verucchi et al. [15] who observed malaise, asthenia, loss of appetite, dyspepsia, nausea, vomiting, jaundice and fever in their patient, approximately 1 month after initiating Fu Fang Qing Dai Wan therapy. Laboratory examinations revealed significantly increased levels of hepatic enzymes and eosinophilia in their patient. According to these authors the Fu Fang Qing

Dai Wan preparation contains *Indigo naturalis*, *Rhizoma smilicis glabre*, *Radix angelicae dahuricae*, and *Radix salviae miltiorrhiza*. Chinese medicine practitioners claim that all of these components are effective in the treatment of various disorders, including skin problems [1, 3, 16].

In the presented case, a slight iron-deficiency anaemia was diagnosed the patient. A further *in vitro* analysis of Fu Fan Qing Dai Wan, with the use of a chelating power assay, revealed a chelating ability of the hydrophilic compounds extracted from the herbs. The chelating properties first occurred during simulated saliva digestion. Their activity was decreased during digestion by the gastric and intestinal fluids. However, because of the easy absorption of these substances, it seems that they are active at the cellular level, leading to reduction of iron accessibility. Thus, the chelating properties of Fu Fan Qing Dai Wan, as well as the changes in the duodenal bulb mucosa detected on endoscopy and leading to a decrease in iron absorption, can explain the iron deficiency found in the patient. After discontinuation of preparation, the levels of both haemoglobin and iron returned to normal. The patient's condition improved rapidly (within 2 weeks) following the Fu Fan Qing Dai Wan discontinuation and quitting the diet, which confirms their negative effect on the patient's condition.

## CONCLUSIONS

Patients should be made aware of the potential hazards of TCM preparations and encouraged to consult their doctor before they decide to use them. Dermatologists, on the other hand, should be aware that skin changes or exacerbation of a pre-existing skin condition may be related to an additional, unconventional method of treatment previously or currently used by their patients.

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