

The Successful Treatment of a Case of Anorexia Nervosa with Juzen-taiho-to

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We report a case of anorexia nervosa that responded remarkably well to a herbal treatment regimen consisting juzen-taiho-to. The patient was a 13-year-old girl who had become anorectic in September 1998. Although she weighed 47 kg around the onset of her disorder, her weight had fallen to 33.65 kg (28% less than ideal) by April 27, 1999, the date she was first examined by our pediatric department. The patient was 154.7 cm tall, and her blood pressure, 98/82 mmHg. She had poor complexion, chills in her lower extremities, and her skin in general exhibited a cyanotic marbled skin. Abdominal examination revealed a hardened rectus abdominis muscle and protuberant linea alba. Anemia and leukopenia were also observed. However, after therapy with juzen-taiho-to at a dose of 5.0 g/day, the hematologic data improved and the patient demonstrated an increased appetite with steady weight gain.

Introduction

The incidence of anorexia nervosa among adolescent women has been climbing in recent years. Personal relationships with other family members and parents in particular are considered to play an important role during the growth phase. However, many factors tend to be involved, thus making treatment difficult and demanding a comprehensive therapeutic approach. In the following case study, the herbal medicine juzen-taiho-to was found to be extremely effective.

Case Report

The patient was a 13-year-old girl presenting with emaciation and weakness in her lower extremities. She lived with her parents and paternal grandmother; both parents were wage-earners.

The patient had no significant medical history. She attended a private middle school, and was

known to be a Punctual, hardworking student who consistently ranked among the top 5 academic performers in her school grade.

The patient began restricting her food intake severely in September 1998. Although she experienced menarche in June 1997, amenorrhea developed in August 1998. On April 27, 1999 the patient visited our pediatric department because of pronounced weight loss and weakness in her lower extremities.

On physical examination, the patient was 154.7 cm tall, weighed 33.65 kg (28.4% less than the ideal of 46.3 kg), and had blood pressure of 98/82 mmHg. She had a low temperature and bradycardia. Her skin had a cyanotic marbled skin with dense vellous hair growth. The lower extremities were cold to the touch and pitting edema. An abdominal region revealed a Sei-chu-sin (may be

Table 1 Laboratory data

	(Apr. 20, 1999)	Apr. 27	(Jun. 18)	Jun. 25	Jul. 22	Aug. 19	Oct. 9	Dec. 3	
WBC	(/ μ l)	2,800	3,000(N1497)	2,000	1,600(N880)	3,400(N2,274)	4,200(N2,654)	4,800(N2,654)	4,900(N2,964)
RBC	($\times 10^4$ / μ l)	397	402	281	265	296	344	397	425
Hb	(g/dl)	12.3	12.7	8.7	8.9	10.1	11.6	12.8	13.3
Ht	(%)	37.4	39.1	26.3	26.2	31.4	36.1	38.2	39.9
MCV	(fl)	94.2	97.2	94	98.8	105.9	104.8	96.2	93.8
MCH	(pg)	31.0	31.7	31.0	33.5	34.1	33.7	32.3	31.3
MCHC	(%)	32.9	32.6	33.1	33.9	32.2	32.1	33.5	33.3
ret	(%)		6.4		14.6	15.2	15.5		16
plt	($\times 10^4$ / μ l)	20.9	11.4	15.3	18.6	22.0	18.3	21.7	24.9
TP	(g/dl)	6.7	6.7		5.7	6.4		6.4	7.1
Alb	(g/dl)	4.9	4.7		4.0				5.1
GOT	(IU/l)	19	34	22	22	25		35	19
GPT	(IU/l)	13	25	44	37	24		49	15
LDH	(IU/l)	211	341	581	278	295		363	283
ALP	(IU/l)	56	80	62	67	129		258	164
CPK	(IU/l)		159	67	59	66		145	
TC	(mg/dl)	256	269		157	147			202
TG	(mg/dl)	60	55		36				
HDL-C	(mg/dl)	90			76				
BS	(mg/dl)		66		80				
Na	(mEq/l)	141	141		145	145		142	141
K	(mEq/l)	4.1	4.3		4.4	4.2		3.9	5.0
Cl	(mEq/l)	102	103		109	109		106	104
Ca	(mg/dl)	9.3	9.4		8.7	9.0		9.0	
P	(mg/dl)		3.2		4.5	4.0		4.1	
BUN	(mg/dl)	23.3	26.6	13.5				15.7	
SI	(μ g/dl)	83			97		130	56	
UIBC	(μ g/dl)				111		207	314	
TIBC	(μ g/dl)							368	
Ferritin	(μ g/ml)				300	89	64	19	
Free T ₄	(mg/dl)	0.9							0.9
Free T ₃	(pg/ml)	1.7							3.2
TSH	(mU/ml)	4.1							3.0

linea alba). Although cranial computed tomography (CT) disclosed mild cerebellar atrophy, CT and magnetic resonance imaging did not detect any lesions in the occupied region. Hormonal examination (GH, IGF, etc) were not performed.

Laboratory findings (Table 1) and clinical course (Figure) showed.

On first examination, the laboratory findings included a white blood cell count (WBC) of 3,000/ μ l; neutrophil count, 1,495/ μ l; hemoglobin concentration (Hb), 12.7 g/dl; red blood cell count (RBC), 402×10^4 / μ l; hematocrit, 39.1%; and platelet

count (Plt), 11.4×10^4 / μ l. Biochemical findings included total protein of 6.7 g/dl; albumin, 4.9 g/dl; GOT, 34 IU/l; GPT, 25 IU/l; LDH, 341 IU/l; and a low alkaline phosphatase level of 80 IU/l (normal range: 127 to 381 UI/l). Mildly elevated readings were observed for creatine phosphokinase (CPK), 159 IU/l (normal range: 40 to 140 UI/l); and bilirubin, 1.5 mg/dl. Total cholesterol had risen to 269 mg/dl, with TG at 60 mg/dl; HDL-C, 90 mg/dl; and LDL-C, 154 mg/dl, indicating hyperlipidemia. The patient's electrolyte levels were normal.

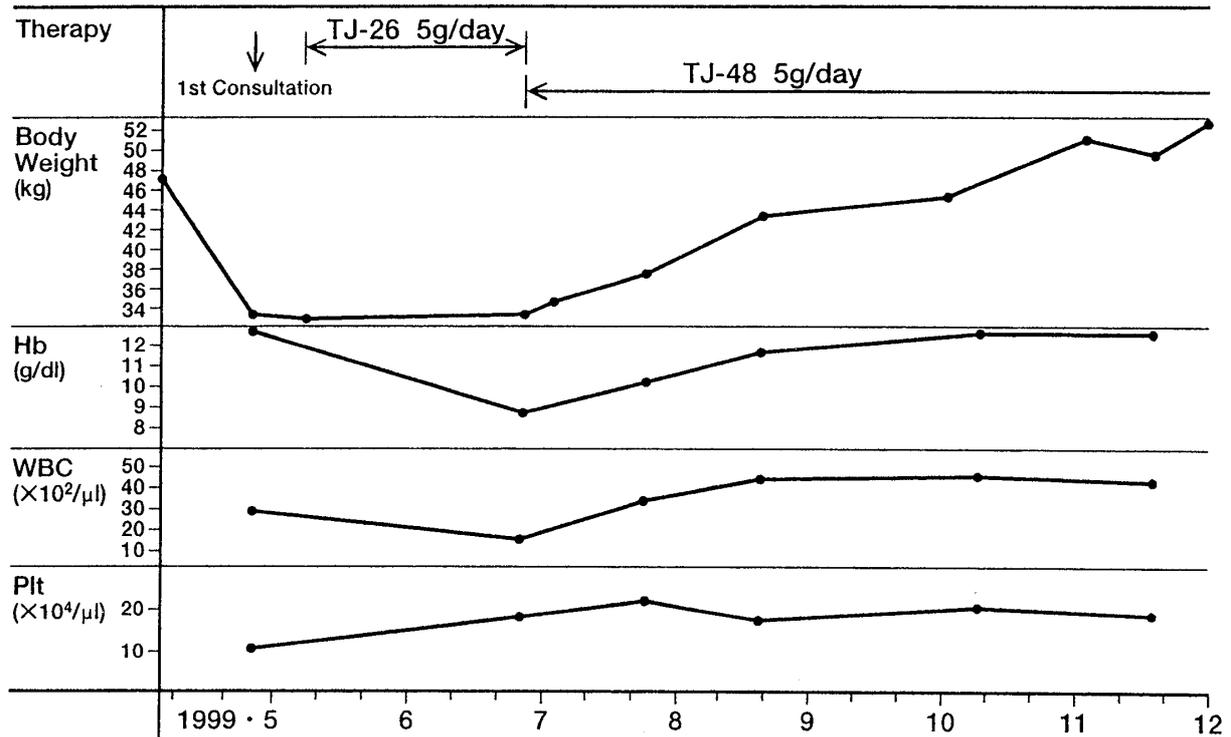


Figure Clinical course

Table 2 Criteria for anorexia nervosa¹⁾

- The patient will not maintain a minimum body weight (e.g., 85% of expected weight for height and age).
- Despite being underweight, the patient intensely fears weight gain or obesity.
- Self-perception of the body is abnormal, as shown by at least one of these :
 - unduly emphasizes weight or shape in self-evaluation
 - denies seriousness of low weight
 - has a distorted perception of own body shape or weight
- Due to weight loss, a female patient has missed at least three consecutive menstrual periods (or periods occur only when she is given hormones).

Anorexia nervosa was diagnosed in accordance with criteria (Table 2) defined by the DSM-IV¹⁾, and the decision was made to utilize herbal therapy. Scoring for Terasawa's ki-kyo, kekkyo, and oketsu scores²⁾ was positive, 38 (over 30), 42 (over 30) and 34 (over 21), respectively. Keishika-ryukotsu-borei-to (produced by Tsumura) was started on May 7 at a dose of 5.0 g/day. Although the patient was gradually relieved of her fatigue and demonstrated an improvement in other clinical signs, she did not gain any weight. On June 18,

she underwent an orthopedic examination for pain in the knee joints. Although bone X-ray films showed nothing unusual, laboratory findings disclosed anemia.

The patient was examined by our department again 1 week later, on June 25. Although the knee pain had subsided, blood examinations decreased Hb of 8.9 g/dl; RBC, $265 \times 10^4/\mu\text{l}$; WBC, $1,600/\mu\text{l}$, and neutrophil count of $880/\mu\text{l}$. On this occasion, the blood picture also revealed the presence of poikilocytes. Mean corpuscular volume (MCV)

was 98.8 fl; mean corpuscular hemoglobin (MCH), 33.5 pg; and MCH concentration (MCHC), 33.9 g/dl. Pattern of anemia showed normocytic normochromic anemia. Although the Plt stood at $18.6 \times 10^4/\mu\text{l}$, mean platelet volume (MPV) was decreased, at 6.8 fl (compared to a normal range of 8.7 to 11.5 fl). Serum iron measured $97\mu\text{g}/\text{dl}$; unsaturated iron-binding capacity (UIBC), $111\mu\text{g}/\text{dl}$ (normal range: 196 to $369\mu\text{g}/\text{dl}$); and serum ferritin, 300 ng/ml.

Juzen-taiho-to therapy at 5.0 g/day was initiated. About 1 month later, on July 22, the patient's blood findings disclosed a higher Hb of 10.1 g/dl; WBC, $3,400/\mu\text{l}$; and neutrophil count, $2,274/\mu\text{l}$. Two months after the initiation of juzen-taiho-to therapy, these readings had risen to 11.6 g/dl, $4,200/\mu\text{l}$, and $2,654/\mu\text{l}$, respectively. A blood examination on October 9 disclosed Hb of 12.8 g/dl; WBC, $4,200/\mu\text{l}$; and neutrophil count, $2,654/\mu\text{l}$ and returned to normal levels.

As illustrated in Figure the patient's clinical course was characterized by improved blood data, while she had overeating without recurrent vomiting, and so gradually steady weight gain. The patient became more cheerful and more active in her school and extracurricular club activities by sweet family support. Although her menstrual cycle has not yet resumed, she is once again leading a normal life. It is known that individuals who suffer anorexia nervosa once are at risk of recurrence. Therefore, patience should be the rule in helping patients in their relations with their parents and friends, and in their school activities.

Discussion

By some estimates, this disorder affects 1 in every 100~150 adolescent girls in urban areas, and its incidence is reported³⁾ to be climbing among the younger ages in particular. It has been suggested that the psychological basis for anorexia nervosa develops during infancy and early

childhood, and that predisposed adolescents typically go through childhood with inner feelings of insufficiency or self-repulsion triggered by the experience of not being fully understood by others around them. In general, such individuals tend to be perfectionists and high achievers in school, but lacking in the ability to express themselves effectively or resolve inner conflicts. As a result, they may go on extreme diets in an attempt to control anxieties brought on by a variety of factors, including the experiences of adolescence, secondary sexual development, and school entrance exams. In some cases, the disorder may be life-threatening and require hospitalization with parenteral feeding, infusion, or intravenous hyperalimentation. In general, therapy comprises the administration of antidepressants and other drug treatments with an emphasis on long-term follow-up psychiatric counseling.

However, our patient acted healthy, was unaware of the gravity of her disorder, and would not take a break from her schooling, physical training, or basketball club activities. Also, she refused to participate in psychological counseling, thus requiring that counseling be provided by her doctor on an outpatient basis.

Anorexia nervosa has been treated with herbal medicines in Japan since the Edo era⁴⁾. Ki-zai and ku-oketsu-zai are 2 preparations that have been used. In general, herbal therapy for this disorder today comprises preparations of sho-saiko-to, ninjin-to, hange-koboku-to and hochu-ekki-to⁵⁾. Some case reports in the literature also cite the efficacy of anchu-san⁶⁾ and juzen-taiho-to⁷⁾. Juzen-taiho-to is described in the SHOKYOMON of the WAZAIKYOKUHO, and is a standard preparation for ki-kyo and kekkyo. Juzen-taiho-to are made up of Shimotsu-to and Shikunshi-to, and further added Keishi and Ohgi. Shimotsu-to are effective improvement of anemia and immunodeficiency. Shikunshi-to are effective digestive func-

tional disorders. Keishi and Ohgi are helpful improvement of microcirculation and chilly constitution. Ki is the origin of the vital energy, Ketsu is the maintenance of the vital activity and so Kikyo is deficit Ki, Kekkyo is deficit blood. It is also prescribed for range of conditions, including disorders manifested by the systemic deterioration of physical fitness, postoperative fatigue or malaise, loss of appetite, poor complexion, anemia, poor skin nutrition or xerosis cutis, and weakness in the lower extremities. Hochu-ekki-to is often prescribed for patients without symptoms of anemia or dry skin.

The difficulty of treating anorexia nervosa is often compounded because many patients are unaware of, or unwilling to accept, that they have a disorder. However, herbal therapy has been reported to be effective, and should be given consideration as a potential treatment.

Conclusions

Our 13-year-old anorexia nervosa patient was treated with juzen-taiho-to. Her anemia subsided

and she demonstrated improved appetite with steady weight gain. These observations, together with other case reports documenting impressive recovery, suggested that herbal preparations can be considered an effective treatment option.

References

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十全大補湯が奏効した神経性食欲不振症の1例

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十全大補湯が奏効した anorexia nervosa の症例を報告する。症例は13歳女性で1998年9月頃より食事をほとんどしなくなった。その時の体重は47kgであったが、小児科を受診した翌年の4月27日には33.65kgで-28%の体重減少がみられた。身長は154.7cm、血圧は98/82。顔色不良、四肢冷感、皮膚の色は暗紫色で、大理石紋様を呈していた。腹診では腹直筋は固くはり、正中芯が突出してみられた。貧血、白血球減少がみられたため十全大補湯5.0g/dayで治療したところ、血液所見が改善し食欲も増し、体重も順調に回復した。今後も再発を繰り返す可能性もあり follow-up が必要である。