Research

Ayurvedic Therapy for Hepatic Encephalopathy: A Case Report

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Abstract

Ayurveda is an Indian system of medicine which has been in practice for thousands of years. Ayurvedic medications have been shown to be effective in the treatment of several disorders of the liver including liver cirrhosis, hepatitis and fatty liver. This case report describes an unusual intervention utilizing Ayurvedic treatment for hepatic encephalopathy. A patient with miliary tuberculosis undergoing anti-tubercular treatment developed hepatic encephalopathy presenting with coma, severely increased liver function tests (LFTs) and other abnormalities. Treatment based on Ayurvedic diagnosis and medication was deployed. It resulted in improvement in liver function, with normalization of LFTs and restoration of consciousness within a short period of time. This case report indicates a possible role for Ayurveda in hepatic encephalopathy and warrants further investigation.

Introduction

Ayurvedic texts describe tuberculosis as a disease that manifests when there is severe tissue loss and is called as Rajayakshma.¹ According to Western medicine the most common treatment in such conditions is anti-tubercular treatment (ATT) which is a combination of hepato-toxic drugs.² Usually patients tolerate the side effects of these drugs but in some cases they could be fatal. This case report describes a case in which the patient could not tolerate ATT and developed complications.
Ayurveda understands human physiology in terms of fundamental elements, namely Earth, Water, Fire, Air & Space (Emptiness). These elements constitute the human body. These constituents are responsible for performing all the physiological activities by creating three groups which separately are called as doshas. These biological humors are Vata, Pitta and Kapha.\(^3\)

The elements perform all the physiological activities immaculately when they are in equilibrium but their imbalance can create various illnesses. There are various factors such as natural effects, dietary and behavioral changes which create an imbalance in elements and cause a disease. Re-establishment of the equilibrium is the goal of a treatment in Ayurveda.

The condition described in this case report is considered to be caused by an extreme disturbance of Pitta (Fire and Water), eventually affecting the liver and leading to liver impairment and disturbance of the senses. Ayurvedic treatment has been reported to be effective for liver disorders including hepatitis, cirrhosis and fatty liver etc.\(^4\)–\(^7\) Ayurvedic texts such as *Ashtang Hruday* and *Charak Samhita* describe the management of such conditions.\(^8\)

**Case Presentation**

**Medical History**

A 69 year old Indian female patient presented to the hospital for general debility and weakness on October 12\(^{th}\) 2012. The weakness and debility had been present for over six months. This was the main reason for which the patient was admitted to the hospital. Initially the patient could easily walk, with only slight weakness. This progressed until regular activities became difficult. Her medical history was negative for infection or miliary tuberculosis.

**Past History**

The patient had suffered from facial palsy in April 2012 and a fracture of the femur neck in 2009 which contributed to overall weakness. The patient had also suffered from painful hemorrhoids for more than three years. Traveling and spicy food aggravated most of the symptoms. The patient was a known hypertensive for more than five years and was under Western medication for the same.

**Diagnosis and assessment**

In the course of investigation by the physician at the hospital, MRI scans showed a probable tubercular lesion leading to a diagnosis of miliary tuberculosis. At that time, the patient was put on a course of Anti Koch’s Treatment / Anti Tubercular Treatment (ATT) which included rifampicin, isoniazid, ethambutol and pyrazinamide. Over the course of the ATT, the patient complained of feeling drowsy; gradually her level of consciousness dropped, bowel movements ceased and she became comatose (on October 22\(^{nd}\) 2012). The patient became unresponsive. At this point, ATT was discontinued but fluids were given intravenously.
At that time, the patient’s clinical biochemistry was found to be abnormal, with prominent changes in LFTs and elevated serum glutamic oxaloacetic transaminase (SGOT) and serum glutamic pyruvate transaminase (SGPT), which were 10 and 30 times above the normal range, respectively (see Table 1).

### Table 1. Ayurvedic elements and doshas.

<table>
<thead>
<tr>
<th>Elements</th>
<th>Dosha</th>
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<tbody>
<tr>
<td>Earth + Water</td>
<td>Kapha</td>
</tr>
<tr>
<td>Fire + Water</td>
<td>Pitta</td>
</tr>
<tr>
<td>Air + Space</td>
<td>Vata</td>
</tr>
</tbody>
</table>

**Examination**

The examination was carried out using Ayurvedic clinical methods including pulse examination and abdominal examination using percussion. Apart from weakness, the patient showed neither any specific neurological symptoms nor liver related specific symptoms. She had well maintained blood pressure and stable weight.

Based on the patient’s examination and test results, she was diagnosed with hepatic encephalopathy due to hepatotoxicity of ATT used for Miliary Koch’s. The overall health condition of the patient was poor and she was maintained in the Intensive Care Unit.

**Ayurvedic diagnosis**

Ayurveda specifically describes liver inflammation in the form of jaundice when Pitta vitiating medicines or diet are consumed in the condition where rasa dhatu is depleted.

The present condition of the patient created Pitta vitiation to a greater extent afflicting the liver and eventually causing the loss of senses. This condition of accumulation of vitiated Pitta in the liver can be treated with herbs that specifically work on Pitta and open the channels facilitating elimination of excess Pitta.
Therapeutic focus and assessment

The patient was then referred for Ayurvedic treatment (AT), which began on the fifth day of coma (27th October 2012). At the time of initiation of AT, the patient was under the medical supervision of a physician at an allopathic hospital in Pune, India and was referred for alternative treatment due to non-response to allopathic treatment. The patient’s treating physician assigned permission for treatment by Ayurveda methods. The patient was being given IV fluids and nutrition was given via feeding tube. In addition, she was receiving albumin as supportive treatment for severe decubitus ulcers on the back and hip region.

AT consisted of the following combinations of herbal and metal therapeutic agents: Falatrikadi Guggul (1000 mg/d), Tamra Bhasma (60 mg/d), and Shwadanshtradi Guggul (500 mg/d) administered for the first two days of treatment. Ayurvedic medicines were administered via the feeding tube. Falatrikadi Guggul is a combination of herbs containing Haritaki (Terminalia chebula), Amalaki (Emblica officinalis), Bibhitaki (Terminalia belerica), Vasa (Adhatoda vasica), Nimba (Azardiracta indica), Kutki (Picrorrhiza kurroa), and Guduchi (Tinospora cordifolia), formulated as a preparation with guggul per the Ayurvedic texts. It is commonly used for the purpose of treating liver disorders like fatty liver, liver cirrhosis etc.

Tamra bhasma is a calx-ash powder made from copper metal. The copper is processed with various decoctions and liquids to improve bioavailability, and then subjected to heat treatment to create the calx. This preparation is known to have a beneficial effect on the liver. It helps to tone the liver by removing accumulated vitiated doshas in it.

Shwadanshtradi Guggul is combination of herbs containing Gokshur (Tribulus terrestris), Haritaki (Terminalia chebula), Amalaki (Emblica officinalis), Bibhitaki (Terminalia belerica), Shunthi (Zinziber officinalis), Pippali (Piper longum), Marich (Piper nigrum), Pashanbheda (Bergenia ciliata) and Dhamasa (Fagonia arabica). It helps to eliminate the vitiated doshas from the body through urine.

On the 3rd day the patient was administered Brahmi vati + Tamra bhasma + Guduchi + Nirgundi (Vitex nigundo) + Shwadanshtradi Guggul, a total of 750 mg per day in divided doses. Falatrikadi Guggul was not administered on this day. On 4th day the patient was again given Falatrikadi Guggul + Shwadanshtradi guggul + Tamra bhasma, 1500 mg per day in divided doses. After the 4th day, the same treatment regimen was repeated without any changes.
Table 2. Ayurvedic preparations.

<table>
<thead>
<tr>
<th>Ayurvedic Preparation</th>
<th>Dose</th>
<th>Duration</th>
<th>Desired Effect</th>
</tr>
</thead>
<tbody>
<tr>
<td>Falatrikadi guggul</td>
<td>1 gm per day</td>
<td>41 Days</td>
<td>Alleviation of pitta; cleansing of channels; strengthening liver</td>
</tr>
<tr>
<td>Tamra bhasma</td>
<td>60 mg per day</td>
<td>41 Days</td>
<td>Lekhan (scraping) of doshas from the liver; strengthening liver</td>
</tr>
<tr>
<td>Shwadanshtradi guggul</td>
<td>500 mg per day</td>
<td>41 Days</td>
<td>Diuretic action for removing excess of water element</td>
</tr>
</tbody>
</table>

Outcomes

Positive changes were seen as early as the 2\textsuperscript{nd} day of treatment. Bowel movements were observed and a feeble response in opening her eyes was seen for a short period of time. Further improvements were observed on the 4\textsuperscript{th} day of treatment, where the patient showed weak response to sound, opened her eyes and showed slight movements of the neck. Urine output improved from the 5\textsuperscript{th} day onward. On the 7\textsuperscript{th} day, the patient started responding to oral commands and was able to stick her tongue out for inspection, upon request. The patient also started speaking a few words coherently.

On the 8\textsuperscript{th} day of treatment the patient became fully conscious, and began speaking in small sentences, although feebly. She began expressing a desire to leave the hospital and return to her home. The patient was discharged from the hospital on November 13\textsuperscript{th} 2012 and was nursed at her home.

Subsequent to the patient’s discharge, her general condition continued to be very poor and she was in moderate to severe pain due to the chronic conditions of bed sores, tuberculosis and hemorrhoids, and due to her profound weakness. While her liver function appeared to be within normal range, the patient was experiencing poor quality of life, and she expired 2 months later due to cardiorespiratory arrest. Her overall condition in the last few months was severely disturbed due to complications from her illnesses including painful hemorrhoids, extreme emaciation, and very low tolerance for pain.
### Table 3. Clinical biochemistry assessments October 26th 2012

<table>
<thead>
<tr>
<th>Test</th>
<th>Pretreatment (Baseline)</th>
<th>Ayurvedic Treatment Period</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Day 0</td>
<td>Day 5</td>
</tr>
<tr>
<td>Serum Alkaline Phosphatase (IU/L)</td>
<td>388</td>
<td>293</td>
</tr>
<tr>
<td>SGPT (IU/L)</td>
<td>491</td>
<td>232</td>
</tr>
<tr>
<td>SGOT (IU/L)</td>
<td>1191</td>
<td>292</td>
</tr>
<tr>
<td>Total Bilirubin (mg/dL)</td>
<td>6.5</td>
<td>3.42</td>
</tr>
<tr>
<td>Direct Bilirubin (mg/dL)</td>
<td>3.22</td>
<td>1.77</td>
</tr>
<tr>
<td>Indirect Bilirubin (mg/dL)</td>
<td>3.28</td>
<td>1.65</td>
</tr>
</tbody>
</table>

### Discussion

Ayurveda has a unique understanding of human physiology and pathology that offers a different perspective in diagnosis and the treatment. The use of Ayurvedic therapeutic treatments can deliver positive results in various conditions that are considered to be difficult to treat by allopathic methods.\(^{20}\)

Ayurveda understands pathology as the derangement / disturbance in body constituents’ viz. *dosha*, *dhatu*, & *mala*, which narrows down to the fundamental elements (Panchamahabhutas). The goal of the treatment is to bring them back in equilibrium. From this perspective, Ayurvedic therapy can be used to treat any illness, even if that illness has not been specifically addressed in the ancient Vedic texts (>5000 years ago).

In the present case, it was hypothesized that exposure to ATT medications created disturbance to raktavaha srotas and its main site, the liver, which led to its dysfunction, and subsequently, coma.

There are various Ayurvedic preparations and herbs like Arogyavardhini, Trifla kadha, Kalamegh, Kumari asav etc. that are widely used for liver related disorders.\(^{21,22}\) In this particular case Falatrikadi Guggul and...
Tamra bhasma along with Shwadanshtri Guggul were mainly used for this condition. These herbs specifically work on the liver and Raktavaha Srotas. In such conditions, the liver is affected due to over accumulation of Pitta which causes it to dysfunction and the condition gets exacerbated by absence of bowel movement. The same condition is worsened when earth and water elements accumulate and cause disturbance with Vata leading to loss of senses (sannyas) or coma. Ayurvedic herbs reduce Pitta and also the over-accumulation of the earth and water elements. This allows Vata to perform its own functions in a proper way which helps to improve the sensorium.

As observed in the course of the treatment it may be inferred that the hepatotoxic effects of chemotherapeutic agents were minimized following AT as observed by the improvement in all the liver function parameters and the sensorium was re-established as demonstrated by return of consciousness and cognition.

Though copper is a micronutrient / element that has a beneficial physiological role it can be hepatotoxic in certain conditions as seen in Wilson’s disease manifesting various symptoms related to liver and also disturbing the blood chemistry to a great extent. The preparation used in this case is the copper in form of ash. The copper is processed with various herbs and decoctions which remove the harmful effects of copper making it easily acceptable to the body.

Ayurveda scriptures theorize that whenever Pitta increasing foods / medicines are given to Pandu patient (whose rasa dhatu gets burnt because of excess of fire element and which then gets manifested as anemia), it may create jaundice. In this case the ATT drugs were the apparent cause of jaundice.

Ayurvedic texts mention the use of loha bhasma (iron) to reduce Pitta and strengthen the tissues. Thus, it can be postulated based on the Ayurvedic principles that iron supplementation if administered during ATT may minimize incidence of hepatotoxicity. Our group would like to investigate the mechanism of action of the reversal process observed in the course of the treatment.

Conclusion

This case report has demonstrated a positive effect on the patient using the Ayurvedic system of medicine, in a complicated case of hepatic encephalopathy.

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References


