



## Case Report

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## A case study on Motor Neuron Disease

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### ABSTRACT

Motor-neuron disease (MND) is a neuro-degenerative disease characterized by muscle wasting and loss of muscle strength. Amyotrophic lateral sclerosis (ALS) is the commonest among MND. Bibrachial amyotrophic diplegia is a variant of ALS where the disease is restricted to upper limbs. A case of Bibrachial amyotrophy characterised by weakness of both upper limbs associated with wasting was managed in SNA Ayurveda Nursing home. The condition is considered as *Vataroga* with special designation as '*Bahusosha*'. A 21 days treatment course was planned and executed which include *Snehana*, *Swedana*, *Sodhana* and *Rasayana chikitsa*. The patient was assessed symptomatically. A weekly assessment based on the quality of his daily activities was performed. A satisfactory improvement was observed with gradual gaining of upper limb strength. There was betterment in his gross and fine motor activities including quality of writing. The principle line of treatment was *Dosha vilayana*, *Dosha sodhana*, and *Dathu vardhana* which is found to be suitable for *Vata – Kapha Roga*.

**Keywords:** Motor-neuron disease, Bibrachial amyotrophic diplegia *Dosha vilayana*, *Dosha sodhana*, *Dathu vardhana*.

### INTRODUCTION

Motor Neuron Disease (MND) is a neuro-degenerative disease characterized by compromised or towards null motor functions of body. Amyotrophic lateral sclerosis is the commonest motor neuron disease. The patient suffering from ALS express symptoms based on the site of pathology. In limb muscle onset, there is weakness of upper and lower limb muscles, resulting in challenged movements, In bulbar onset there is speech debility while in respiratory onset there is breathing difficulty <sup>[1]</sup>. These are some variant expression of ALS, where the disease is restricted to single spinal region. Bibrachial amyotrophy is one among them <sup>[2]</sup>. The present case is a case of Bibrachial amyotrophy managed in SNA, Ayurveda Nursing home. The details have been presented after taking the consent of the patient.

### CASE REPORT

A 41 year old patient, male, residing and working in Chicago, USA, as a marketing analyst diagnosed with Bibrachial amyotrophy with chief complaints as bilateral upper limb weakness and wasting.

### CASE HISTORY

He was apparently normal one and half years before, where he noticed sudden loss of strength in right wrist joint, with drooping of palms. This began troubling his day to day activities. He was not able to lift and throw any object. He got consulted with an orthopedician who suspected the condition as carpal tunnel syndrome or any other neurological anomaly. After 3 months he noticed the weakness spreading to right arms. He had an EMG 2 months later, which suggested the possibility of multifocal motor neuropathy. There was evidence of diffuse denervation and re-innervation in multiple upper limb muscles. After 8 months he noticed difficulty with daily performance of left hand. He again underwent EMG and MRI scanning. The reports showed minimal signs of degenerative disc changes. By next year the condition was diagnosed as MND as specially Bibrachial Amyotrophy. There was no swallowing or speech difficulty, no shortness in breath. He could walk quite a long distance without difficulty.

### EXAMINATIONS

**VITALS:** Pulse: 78 /min  
Heart rate: 78/min  
Temperature: 98.7 d fh  
Blood Pressure: 120/70 mm hg  
CVS: S1S2 sounds heard; Normal

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Respiratory system: No signs of respiratory dysfunction. No abnormal chest sounds heard.

Higher mental functions: Normal, Intact.

**Table 1:** Examination of Reflexes

Upper Limb	Right	Left
Palmar reflex	Diminished	Diminished
Biceps reflex	Diminished	Diminished
Triceps reflex	Diminished	Diminished

**On Palmar reflex test:** On right hand: There was slight flexion of middle finger and very mild flexion of little and ring finger.

**On left hand:** There was mild flexion of middle finger and poor flexion of other fingers.

**Table 2:** Examination of Muscle Strength [3]

Right Shoulder	Left Shoulder	Right elbow	Left elbow
Grade 2	Grade 2	Grade 3	Grade 3

**Inspection:** Gross muscle wasting of bilateral arms and forearms

**Palpation:** No calor

**Movements:** Right upper limb movements very much restricted compared to left upper limb

**Table 3:** Examination of Range of Movements

Movement	Right Shoulder	Left Shoulder
Abduction	~ 30 degree	~ 45 degree
Flexion	~ 30 degree	~ 45 degree
Circumduction	Restricted	Restricted
Movement	Right Elbow	Left Elbow
Flexion	Almost normal	Almost normal
Extension	Almost normal	Almost normal

**Table 4:** Treatment Implemented

1 <sup>st</sup> day to 7 <sup>th</sup> day		
Treatment procedure	Method	Formulation used
<b>SIROVASTHI</b>	Head oleation	Karpasathyadi Tailam
<b>MATRAVASTHI</b>	Minor oil enema	Pipplayadi anuvasana Tailam - 50 ml
<b>CHOORNA PINDA SWEDAM</b>	Powder bag fomentation	Kolakulathadi choornam with Narayana Tailam & Prabhanjanam tailam for prior body massage.
2 <sup>nd</sup> day to 14 <sup>th</sup> day		
Treatment procedure	Method	Formulation used
<b>NASYAM</b>	Errhine therapy	Ksheerabala Tailam 7avarthi - 8 drops were instilled in each nostril.
<b>MATRAVASTHI</b>	Minor oil enema	Pipplayadi anuvasana Tailam - 50 ml
<b>PATRAPINDA SWEDAM</b>	Leaf bag massage	Nirgundi Patra (Vitex nigundo Linn) + Karanja Patra (Pongamia pinneta Linn) + Eranda Patra (Ricinus communis linn) + Dattura Patra (Datura metel Linn) & Narayana Tailam & Prabhanjanam tailam for prior body massage.

## Radiological Findings:

X-Ray: - No measurable Scoliosis / Kyphosis.

AP/lateral: - Mild degenerative changes in mid and lower thoracic disc spaces.

X-Ray cervical: - Mild degenerative disc changes evident at c5-c6, c6-c7.

X-Ray Elbow joint (right):-	} Bone structures are intact. The joint spaces are preserved. No lytic or sclerotic changes noted. No bony destruction demonstrated.
X-Ray Elbow joint (left):-	
X-Ray Wrist joint (right):-	
X-Ray Wrist joint (left):-	

**MRI Brain:** No significant signal abnormalities in the brain. Major White matter tracts appear qualitatively intact with preserved. FA intensity and directional assignments.

**MRI Cervical Spine:** W/o and with contrast: - Right par central disc protrusion indents right ventral cord at C6-C7 contributes to moderate spinal stenosis at this level. Spinal Cord stenosis at C5-C6.

## FAMILY HISTORY

Muscular dystrophy was reported for patient's cousin.

Paternal history of sensory neuropathy.

The Creatine Kinase level was 104 U/L which was within the normal range of reference value. Vitamin B12- 144 pg/ml which was lower than the normal range of reference value given.

## TREATMENT

The treatment pattern was arranged as 3 courses of 7 days, which include: -

15 <sup>th</sup> day to 2 <sup>st</sup> day		
Treatment procedure	Method	Formulation used
VASTHI CHIKITSA (Enema therapy)		<b>YOGAVASHTI (Enema therapy)</b> <ul style="list-style-type: none"> <li>• Erandamolaadi vasthi- 1 no's- 800 ml</li> <li>• Rajayapana vasthi - 2 no's- 800 ml</li> </ul> <b>Snehavasthi</b> – Pippalyadi anuvāsana tailam – 150 ml
SHASHTIKA SAALI PINDA SWEDAM	Rice bag fomentation	Shashtika Sali ( <i>Oryza sativa</i> Linn) boiled in decoction of Bala ( <i>Sida cordifolia</i> linn) and milk and Narayana Tailam & Prabanjanam tailam for prior body massage.

**Table 5:** Erandamolaadi vasthi – ingredients and quantity for single administration

Ingredients		Quantity
Makshika	Honey	150 ml
Saindava lavanam	Rock salt	10 gm
Sneham	(Dhaanuantharam tailam)	150 ml
Kalkam	Paste of Vacha ( <i>Acorus calamus</i> Linn), Satahwa ( <i>Anethum sowa</i> Kurz) Hapusha ( <i>Sphaeranthus indicus</i> Linn) Priyangu ( <i>Callicarpa macrophylla</i> vahl) Yashtimadhu ( <i>Glyrrhiza glabra</i> Linn), Pippali ( <i>Piper longum</i> Linn) Vatsakabeeja ( <i>Holarrhena antidycentrica</i> Roxb) Musta ( <i>Cyperus rotundus</i> Linn), Tarkshysailam <sup>[4]</sup>	30 gm
Kwatham	Decoction of root of Eranda ( <i>Ricinus communis</i> Linn), Palasa ( <i>Butea monosperma</i> Kuntz), Saliparni ( <i>Pseudarthria viscida</i> Linn),, Prisniparni ( <i>Desmodium gangeticum</i> L.) Brihti ( <i>Solanum indicum</i> Linn), Kantakari ( <i>Solanum Xanthocarpum</i> Schrad) Gokshura ( <i>Tribulus terrestris</i> Linn), Rasna ( <i>Alpinia galanga</i> Linn), Bala ( <i>Sida cordifolia</i> Linn), Gudoochi ( <i>Tinospora cordifolia</i> willd), Aswagandha ( <i>Withania somnifera</i> Duna), Punarnava ( <i>Boerhavia diffusa</i> Linn), Aragwadha ( <i>Cassia fistula</i> Linn), Devadaru ( <i>Cedrus deodara</i> Roxb), Madanaphala ( <i>Randia dumetorum</i> Lam) <sup>[5]</sup>	400 ml
Gomurta (Cow's urine)		100 ml
<b>Total</b>		<b>800 ml</b>

**Table 6:** Rajayapana vasthi ingredients and quantity for single administration

Ingredients		Quantity
Makshika	Honey	150 ml
Saindhava lavanam	Rock salt	10 gm
Sneham	(Vidaryadi grutham)	150 ml
Kalkam	Yashtimadhu ( <i>Glyrrhiza glabra</i> Linn), Misi ( <i>Anethum sowa</i> Kurz) Syamaka ( <i>Panimum sumatrense</i> roth), Kalingaka ( <i>Holarrhena antidycentrica</i> Roxb), Rasanjana ( <i>Berberis aristata</i> Dc) <sup>[6]</sup>	30 gm
Kwatham	Musta ( <i>Cyperus rotundus</i> Linn), Pada ( <i>Cyclea peltata</i> Hf), Amrita ( <i>Tinospora cordifolia</i> willd), Eranda ( <i>Ricinus communis</i> Linn), Bala ( <i>Sida cordifolia</i> Linn), Rasna ( <i>Alpinia galanga</i> Linn), Punarnava ( <i>Boerhavia diffusa</i> Linn), Manjishta ( <i>Rubia cordifolia</i> Linn), Aragwadha ( <i>Cassia fistula</i> Linn), Ushira ( <i>Vetiveria zizanioides</i> Linn), Trayamana ( <i>Gentiana kurro</i> royle), Aksha ( <i>Terminalia bellerica</i> Roxb), Rohini ( <i>Picrorhiza kurroa</i> Royle), Saliparni ( <i>Pseudarthria viscida</i> Linn), Prisniparni ( <i>Desmodium gangeticum</i> ) Brihati ( <i>Solanum indicum</i> Linn), Kantakari ( <i>Solanum Xanthocarpum</i> Schrad), Gokshura ( <i>Tribulus terrestris</i> Linn), Madanaphala ( <i>Randia dumetorum</i> Lam), Milk <sup>[7]</sup>	400 ml
Avapa	Ajamamsa rasa (Goat meat decoction)	100 ml
<b>Total</b>		<b>800 ml</b>

**INTERNAL MEDICATION**

For this 21-day patient was given following as internal medication:

**Table 7:** Internal medications administered, dosage and duration

Medication	Dosage		Total quantity
Balasariryekadi Kashayam	60 ml	Twice daily	1260 ml
Ksheerabala Tailam 7 Avarti	2.5 ml	Twice daily	52.5 ml
Shaddharanam Chooranam	5 gm	Twice daily	52.5 ml
Indukantham Gritham	5ml	At bed time	105 ml

**DIET**

Patient was given simple vegetarian food with less spices.

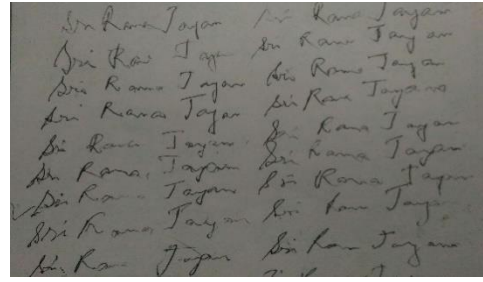
**RESULT**

The response to the treatment was done by the symptomatic assessment of patient. There was a day-to-day improvement in the condition which can be concised as weekly results. Writing assessment was undergone for the patient.

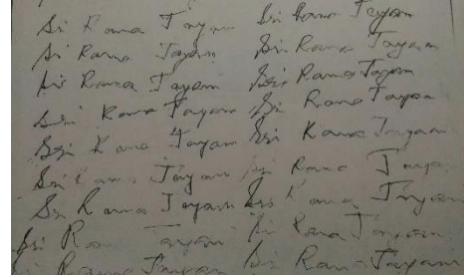
**Table 8:** Improvement in patient’s condition after each course

<b>After completion of 7 days</b>	<p>Improvement in finger movements like</p> <ul style="list-style-type: none"> <li>• Opposing other fingers with thumb.</li> <li>• Typing in computer key board.</li> <li>• Holding tumbler.</li> <li>• Raising hand up to the switch board. (~ 90 degree)</li> <li>• Switch on and off the lights and fans.</li> <li>• He could lift and hold a mug of water for bathing.</li> </ul>
<b>After completion of 14 days</b>	<ul style="list-style-type: none"> <li>• It was noted that the quality of letters written by patient were getting better some days and, on some days, it was not up to mark.</li> <li>• Typing on key board was successful.</li> </ul>
<b>After completion of 21 days</b>	<ul style="list-style-type: none"> <li>• Patient was able to lift and rotate (Circumduction) his right upper limb to an angle of 360 degrees with drooping wrists and left hand with a good erected wrist.</li> <li>• He was able to fold fairly the bed sheet without much ground or bed support.</li> <li>• He was able to hold and eat 8-9 spoons of food with the right hand.</li> <li>• He was able to switch on the button of his vibrating tooth brush with his right finger, using nail strength, which was previously done with left finger.</li> <li>• Removing the dirt in his nail using opposite nails which indicates fine motor movement.</li> </ul>

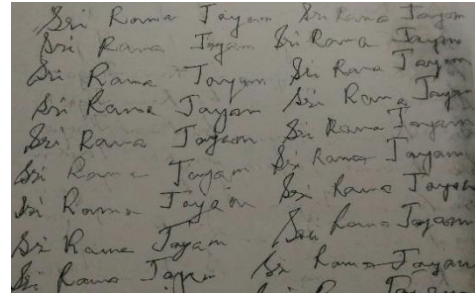
**Writing assessment:** For the same, unruled page note book was used. There was betterment in the quality of writing. Patient was writing in English language. The improvement was presented as follows.



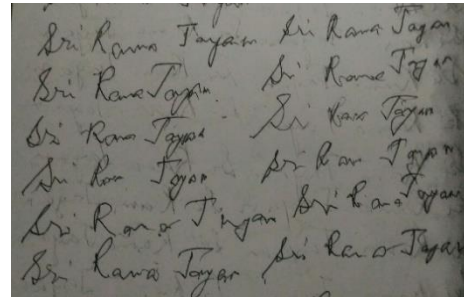
**Figure 1:** DAY - 1



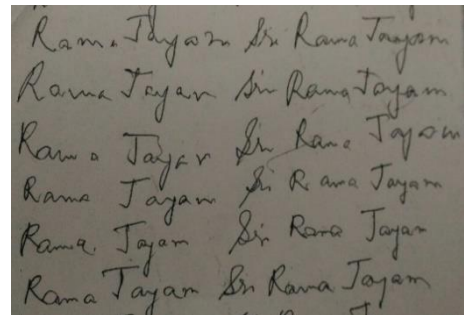
**Figure 2:** DAY - 6



**Figure 3:** DAY - 11



**Figure 4:** DAY - 15



**Figure 5:** DAY - 18

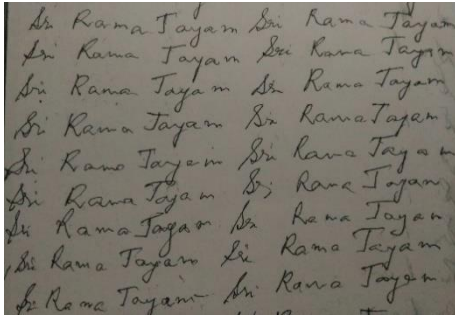


Figure 6: DAY - 21

## DISCUSSION

The present condition is considered as *Vatavyadhi* with special designation as '*Bahusosham*' [8]. The lesser and misdirected functions of *Vata* is supposed to be the resultant pathological circumstance. The treatment has been planned accordingly. Clearing the *srotases* and optimizing the course of *Vata* were the principal factors in the treatment. *Vata* is directed throughout the body, exhibiting both systemic and local functions. An inaccuracy even in a single site can alter the other. The treatment selected and administered was aimed for the following purposes.

Table 9: Probable mode of action of each Kriyakarma

Treatments given	Mode of action
<i>Sirovasthi</i>	Clears the <i>Srotorodha</i> and thereby ensuring appropriate movement of <i>Vata</i> .
<i>Matravasthi</i>	<ul style="list-style-type: none"> <li>Provides regular expulsion of vitiated <i>doshas</i>, which are directed into the <i>Koshtha</i> by <i>Snehana</i> and <i>Swedana</i>.</li> <li><i>Balyam</i> (strengthening).</li> </ul>
<i>Kolakulathadi choorna potalli sweda</i>	Softens <i>Mamsa dathu</i> , dislodges <i>dosha</i> and removes <i>Ama</i>
<i>Patra potalli sweda</i>	Provides strength to <i>Mamsa dathu</i> .
<i>Nasya</i>	<ul style="list-style-type: none"> <li>Removes <i>doshas</i> in the form of phlegm.</li> <li><i>Brimhana / Pushti</i> of <i>mastulunga</i> (Brain tissues).</li> <li>Pacify the <i>Vata</i> which is provoked by <i>dosha</i> elimination</li> </ul>
<i>Erandamooladi vasthi</i>	<ul style="list-style-type: none"> <li>Removes the dislodged <i>doshas</i> which are directed into the <i>Koshtha</i>.</li> <li>Suitable in condition like muscle wasting, caused by <i>Vata dosha</i>, ataxia by <i>Kapha prakopa</i> and <i>Vataksahaya</i></li> </ul>
<i>Rajayapana Vasthi</i>	<ul style="list-style-type: none"> <li>'<i>Mamsa agnibala sukra vivardhana</i>' [9]</li> <li><i>Rasayana</i></li> </ul>
<i>Shashtika Sali pinda sweda</i>	Strengthens <i>Mamsadathu</i> (providing muscle tone)
<i>Shaddharana choornan</i>	<i>Ama pachana- Srotoshodhana- Dosha samana</i>
<i>Balasairyekadi Kashayam Ksheerabala 7 avarthi</i>	<i>Dathu poshana-Vardhana</i>
<i>Indukantham Gritam</i>	<i>Srotosodhana- Agnideepana, Rasayana</i>

The treatment principle includes lessening the progression of disease which are usually represented by the severity of symptoms and improving the strength of weakened limbs. The treatment administered can be concised as *Dosha Vilayana (dislodging the*

*vitiated doshas)* 2. *Dosha Sodhana* (Expelling the vitiated doshas) 3. *Dathu Vardhana* (augmenting the *dathus* quantitatively and qualitatively). Based on the assessment criteria which includes the fineness in patient's daily routine, it was clear that the treatment choices were appropriate. The results of first week assessment revealed that, the motor functions were improving. The gross motor movements had a healthier improvement than fine motor movements. The range of movements and strength of upper limbs has increased. The patient was able to manage with comparatively larger objects. The quality of fine motor movements were chiefly assessed by the method writing. By the completion of second week, there was further improvement in the assessment results regarding gross motor movements. There was inconsistency in uniform writing pattern, which was supposed to be owing to the early exhaustion of upper limb. By the end of third week, there was a much appreciable improvement in both the gross and fine movement skills. Easiness in working with both larger and smaller objects was observed. A better and consistent and uniform writing pattern was observed.

*Vasthi* and *Nasya* plays a key role in maintaining the normal course of *Vata*. In *Vasthi*, rectal route administration of medicated oil or instantly prepared emulsion drug mixture is executed. The patient is allowed to retain the same for a considerable period of time or according to the retaining capacity. Such an administration can bypass the hepatic metabolism of drug [10]. Rectal drug administration can ensure a comparatively faster absorption of drug. An expected liposomal activity of the medicated oil can thus help in the easy distribution of drug to the target cells. *Nasya*, the intranasal medicine administration, owns the potential to cross the blood brain barrier. The *Sneha paka* (generally medicated ghee or oil preparations) which may contain a polar active principle surrounded by the non-polar oil medium [11], can be easily absorbed from the endothelial cells of brain capillaries into the brain cells.

## CONCLUSION

Bibrachial amyotrophy is a variant of Motor neuron disease. A case study on Bibrachial amyotrophy, which here correlated as *Vatavyadhi* to '*Bahusosha*' has been done. The disease is considered as aspect of *Vata pradhana*. A systematic treatment protocol including both internal and external treatment was adopted. The treatment protocol involved *Snehana- Swedana, Sodhana* and *Rasayana*. The treatment thus executed for a duration was 21 days had an optimistic impact on the disease, which was shown by the drop in the symptoms. The response of the patient's condition to the treatment was assessed through the improvement in his daily activities. A substantial decrease in the intensity of symptoms was observed with a better quality of day to day activities. Thus, the treatment was found to be effective in managing the present ailment. Follow up treatments are necessary to acquire better results.

## REFERENCES

- McDermott CJ, Shaw PJ. Diagnosis and management of motor neurone disease. *BMJ*. 2008; 336(7645):658-662. doi:10.1136/bmj.39493.511759.BE
- Omar Jawdat, MD, Jeffrey M. Statland, MD, Richard J. Barohn, MD, Jonathan Katz, MD and Mazen M. Dimackie, MD. ALS Regional Variants (Brachial Amyotrophic Diplegia, Leg Amyotrophic Diplegia, and Isolated Bulbar ALS). *ncbi*. Published 2015 Sep 8.pg 1

3. Naqvi U, Sherman Al. Muscle Strength Grading. [Updated 2019 Jul 1]. In: StatPearls [Internet]. Treasure Island (FL): StatPearls Publishing; 2020 Jan-. Available from: <https://www.ncbi.nlm.nih.gov/books/NBK436008/>
4. Acharya Vagbhata, Ashtangahridayam, Prof.K Srikantha Murthy, English translation Chowkambha Krishnadas Academy.2016 Kalpasthana,Chapter 4 Pg 560, Sloka 8 ½ -9
5. Acharya Vagbhata, Ashtangahridayam, Prof.K Srikantha Murthy, English translation Chowkambha Krishnadas Academy.2016 Kalpasthana,Chapter 4 Pg 560, Sloka 7-8 ½
6. Acharya Vagbhata, Ashtangahridayam, Prof.K Srikantha Murthy, English translation Chowkambha Krishnadas Academy.2016 Kalpasthana,Chapter 4 Pg 566, Sloka 40 ½
7. Acharya Vagbhata, Ashtangahridayam, Prof.K Srikantha Murthy, English translation Chowkambha Krishnadas Academy.2016 Kalpasthana,Chapter 4 Pg 566, Sloka 37-38
8. Sreeman Namboothiri, Chikitsa Manjari, 9<sup>th</sup> ed, Vidhyarambham Publishers, 2010, Pg 364, Sloka 13-14.
9. Acharya Vagbhata, Ashtangahridayam, Prof.K Srikantha Murthy, English translation Chowkambha Krishnadas Academy.2016 Kalpasthana,Chapter 4 Pg 566, Sloka 40 ½
10. Brahmankar DM, Sunil B Jaiswal. Biopharmaceutics and Pharmacokinetics. (1st Ed.). Delhi: Vallabh Prakashan; 2007.Chapter 2, Pg 66
11. Duraipandi S, Selvakumar V, Er NY. Reverse engineering of Ayurvedic lipid based formulation, ghrita by combined column chromatography, normal and reverse phase HPTLC analysis. *BMC Complement Altern Med*. 2015; 15:62. Published 2015 Mar 13. doi:10.1186/s12906-015-0568-9

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