CASE REPORT

Beliefs of a traditional rural Indian family towards naturalistic and faith healing for treating epilepsy: a case study

Sudip Bhattacharya,¹ Amarjeet Singh²

¹Community Medicine, Post Graduate Institute of Medical Education and Research, Chandigarh, India

²School of Public Health, PGIMER, Chandigarh, India

Correspondence to
Dr Sudip Bhattacharya,
drsudip81@gmail.com

Accepted 31 May 2018

SUMMARY

In this case study, we describe our experiences with a rural poor family from north India that initially contacted faith healers for treatment of their child who was having symptoms suggestive of epilepsy, but the seizures continued even after this. The family migrated to a city, where they started allopathic treatment, but eventually they had to discontinue it as there was no apparent relief. Again, they went back to their native village and restarted the treatment from the faith healer. This case study highlights the fact that in spite of the significant development of medical science, many questions pertaining to epilepsy treatment are still unanswered. Such dissatisfaction with the allopathic treatment of epilepsy is very common. Complexity of the disease and high cost of modern medication, side effects of drugs, efficient but heavy treatment protocols and unpredictable outcome are responsible for continued practice of people consulting faith healers for treatment of epilepsy. However, these remain unnoticed and undocumented.

INTRODUCTION

The case

The author handled this case as a resident doctor while working in an Urban Health Training Centre (UHTC) of Community Medicine at the School of Public Health, Postgraduate Institute for Medical Education and Research in Chandigarh.

Our first outpatient department (OPD) encounter, on 19 September 2013, a 14-year-old female child presented to our OPD with a history of nausea and non-projectile vomiting for 5–6 days just after taking tablets prescribed to her. She was advised to stop taking the medicine, which was probably aggravating her vomiting. We prescribed antiemetic tablets to the patient. Similar episodes of vomiting had also occurred 1 month prior to the visit. Medical records revealed that the patient was taking the carbamazepine tablets (16 mg/kg/day, two times per day) for the treatment of epilepsy for the previous 4 years. Her compliance to the treatment was not good.

The patient had her first seizure at the age of 5 years. It occurred in the patient's native village in Bihar, India (April 2008) while she was defecating outside with her mother. The seizure lasted for 5 minutes. The patient's mother reported that the patient's whole body convulsed during the

seizure. She also noticed tongue biting, drooling of saliva and deviation of the angle of the mouth. This episode was followed by blurred vision and headache. The patient's mother consulted a faith healer on the same day, as suggested by one of her relatives.

There was a primary government health centre in the patient's village. However, no doctor was available there. A pharmacist handled the case and prescribed commonly used medications. According to the mother, the faith healer was better accepted in the community than the pharmacist. The faith healer administered the patient some local medicine in powder form. He also advised that the girl should be slapped and forced to smell a shoe in case of seizure recurrence. This protocol was followed by the family for 1 year, during which the patient experienced three seizures. This greatly disturbed the patient's father, who lived in Chandigarh, where he earned his livelihood. He paid quarterly visits to his village every year while supporting the family financially. The patient's father was not satisfied with the faith healer's treatment. According to him, the treatment was 'unscientific'. The patient's father worked in Chandigarh as a daily wage labourer with a monthly income of Rs8000–Rs10 000. He had heard about a good tertiary care centre for the treatment of epilepsy in the city from his peer groups. In fact, one of his friends who had epilepsy was successfully cured by the doctors in that centre. The patient's father moved his family from the village of Bihar to Chandigarh to seek better treatment for his daughter in 2009.

The patient's fifth seizure occurred in Chandigarh at 1:00 on 16 July 2009. The patient's father immediately took her to the emergency OPD of the nearby civil hospital, where she was administered an injection of phenytoin, normal saline and steroids. She was admitted there for 4 days. Magnetic resonance imaging (MRI) was also recommended for the patient, which revealed a 10 mm lesion with ring enhancement in the right cortical area. Electroencephalography (EEG), a blood test, chest X-ray and stool tests were also advised. The results of the tests were normal. The above tests were performed at a private diagnostic centre and cost around Rs5000. The patient was discharged 5 days after admission. The doctors advised routine follow-up. No investigations or preventive measures were suggested for the family members, who were also not informed of the possible side effects of the drugs.

To cite: Bhattacharya S, Singh A. *BMJ Case Rep* Published Online First: [please include Day Month Year]. doi:10.1136/bcr-2018-225405

The patient had three similar seizures in the same year. The seizures occurred at her school, at home and at the local market. Each time, the patient was treated at the civil hospital. Repeat MRI, EEG and chest X-Ray (to exclude pulmonary tuberculosis) were performed. Blood and stool tests were also performed for the detection of cysticercosis antigen and cysts, respectively. The patient was diagnosed with probable case of neurocysticercosis (fulfilling one major, one minor and two epidemiological criteria)¹ and was discharged with medical advice [carbamazepine tablets (16 mg/kg body weight) and calcium (500 mg once daily for 6 weeks)] and instructions to visit the OPD.

Following the patient's visit to the tertiary hospital, she had three to four seizures per year. The family was frustrated with the allopathic treatment, for example, long waiting period in the OPD, frequent blood sample investigations, short (2–3 min) consultations with doctors and the side effects of the medicines. The father was also required to take a leave from his job, which affected the family financially. Moreover, the patient's seizures continued to recur off and on. The family was exasperated and thus stopped treatment for the patient's symptoms. The family also stopped taking the patient to the hospital.

The patient was part of a lower-middle-class nuclear Hindu Harijan family. The parents of the patient had four children, and all of the children with the exception of the patient in this case were apparently healthy. The patient's father was a daily wage labourer and her mother was a home maker. The father was educated up to the fifth standard level and the mother was illiterate. In migrant labourer families, the husband often goes to a city to earn a living, and the mother lives in the native village with her children. This was the case in the patient's family. The patient's mother also made all decisions regarding the care of her children, including the patient with seizures. However, when the patient's mother moved to Chandigarh with her husband, she assumed a passive role. The husband was the decision-maker in Chandigarh.

The family's migration from its native village in Bihar was motivated by social issues as well as the medical care of the patient. The family members faced discrimination in their native village due to their daughter's seizures, and social isolation was a major concern for the family. The family members belonged to a lower caste and were ill-treated by individuals from higher castes. The villagers believed that the child was a 'witch' and that she could harm the villagers. They, therefore, stigmatised the family and treated the family members as social outcasts. The villagers threatened punishment by the local governing body (panchayat) if the family refused to arrange to exorcise the 'witch'. Some local priests (from higher castes) also suggested that if the patient's father donate his cows, buffaloes and his entire land to the Brahmins (higher caste Hindus), he would be absolved of the sin.

Assessment of the patient's personal history revealed that the family members were used to eating roasted pork. They also did not wash their hands routinely before eating and after defecation.

First home visit

We visited this family as a part of our Community Medicine training programme at UHTC. On medical examination of the patient, we found that her vitals were normal: her pulse rate was 72 beats/min and regular, her blood pressure was 120/74 mm Hg and her respiratory rate was 18 breaths/min. Pallor, cyanosis, jaundice and clubbing were absent. The

patient's body mass index was 26.47 kg/m². Systemic examination revealed no signs of dehydration. The patient's liver and spleen were non-palpable. Bilateral normal vesicular breath sounds were present, and heart sounds were normal. Central nervous system examination indicated that the patient was conscious and oriented to time, place and person. Motor nerve examination revealed normal deep tendon reflexes. We observed flexion in the bilateral plantar reflex test. Neck rigidity was absent, and the results of the ophthalmological examination were normal.

All previous CT, EEG, blood and chest X-ray records were re-examined thoroughly. We suspected that the patient's vomiting was due to side effects of the prescribed medicine. After providing initial treatment for her vomiting, we advised the patient to undergo repeat EEG, brain MRI and testing to determine her blood carbamazepine level for further investigation from neurology department. We advised the patient to visit our OPD for follow-up.

Second home visit

The patient did not visit our department for 2 weeks. We visited the patient's home again to inquire regarding this matter. The patient's father told us that the family had returned to the village for treatment from the faith healer, as they had no other option. At the time of our visit, the family had spent Rs40 000 and were still spending Rs600–Rs1000 every month for the patient's treatment, which was creating a serious financial burden to the family. In spite of reassurances from us regarding a good treatment outcome, the patient's family took her to the village for consultation with the faith healer. The family did not face stigma or social discrimination in Chandigarh. However, unfortunately, the sole purpose of the family's move to Chandigarh (relief from the seizures for the patient) was not fulfilled. Their queries regarding when the patient's seizures would stop were not answered properly by the physicians in Chandigarh. In addition, the side effects of the allopathic medicines had diminished the family's faith in modern medicine. As a result, the family returned to its native village.

Global health problem list

- A. Disease related
- B. Epilepsy is still a major public health problem. It continues to lead to the social exclusion of marginalised families in rural India.
- C. Misconceptions, beliefs and taboos associated with epilepsy hinder the treatment of epilepsy with modern medicine.
- D. Health system related
- E. Costly allopathic treatment with elaborate protocols, long waiting times and heavy expenses force patients to consult faith healers.
- F. Faith healers are more culturally acceptable to common people than allopathic doctors.

DISCUSSION

Epilepsy is a global problem

Epilepsy is a chronic neurological disorder affecting individuals of all ages. According to WHO, more than 50 million individuals, mostly from low-income and middle-income countries, have epilepsy. The prevalence of epilepsy is higher in low-income and middle-income countries. Unfortunately, in certain parts of the world, 80%–90% of patients with epilepsy do not receive any treatment.² Patients with epilepsy and their families face stigma and social discrimination in many parts of the world.

Children with epilepsy are forced to discontinue their schooling and adults with epilepsy find it difficult to marry in some instances.² Sixty-six per cent of cases of epilepsy are idiopathic (the causes are unknown).³ Three per cent of cases of epilepsy in low-income and middle-income countries are thought to be due to an infectious parasitic disease called cysticercosis. This infection affects the central nervous system and results in a condition called neurocysticercosis, which is characterised by epileptic seizures.⁴

Misconceptions, false beliefs and taboos are associated with epilepsy

Traditional rural Indian families consider health a token of divine benevolence and disease a curse or punishment by god. Illness in children is often considered a result of a spell cast by an 'evil eye'. Beliefs including that disease is due to impurities of blood or breach of a taboo are deeply rooted among rural and tribal families. These families ascribe the cause of epilepsy to supernatural forces. Superstitions regarding the aetiologies of seizure disorders become obstacles to contact with modern doctors and efforts to control epilepsy among rural Indian tribes.⁵

Diseases like epilepsy are thought to be due to intrusion of an evil spirit or ghost into the patient's body. It is believed that the evil spirit or ghost controls the patient and alters his or her actions and identity. Often, epileptic seizures are considered to be the actions of a spirit (jinn) present in the human body.⁶ Rural Indian communities believe that performing pujas (worship) to propitiate the deities is the only way to address problems due to epilepsy.⁵ This mind-set affects the treatment-seeking behaviour of individuals with epilepsy.⁷⁻⁹ Most individuals living in Indian villages visit registered medical practitioners (not medical graduates) for the treatment of common ailments. However, for diseases with strange symptoms, such as seizures, they resort to magic and witchcraft and visit a folk practitioner. Thus, 'shamans' play a major role in societies where there is no access to professional medical practitioners. The 'shamans', who are usually male part-time specialists, are often involved in the healing of diseases such as epilepsy. Westerners often refer to 'shamans' as 'witch doctors'.¹⁰

Even in the USA, one-third of the population regularly consults alternative practitioners, such as acupuncturists or chiropractors (neuromuscular specialists) without the knowledge of physicians.¹¹ Surprisingly, highly educated individuals sometimes seek alternative care for chronic disorders like epilepsy, leprosy and tuberculosis.^{11 12} Despite modernisation, our society still harbours negative attitudes towards epilepsy, as there is orthodox thinking regarding its aetiology and supernatural causes are thought to lead to epilepsy. Even though there is sufficient scientific evidence regarding the physiology of epileptic seizure, it is still believed that this condition has mystical causes. This indicates poor understanding regarding epilepsy in our society. Family members and relatives of patients with epilepsy often become panicked during the epileptic seizure because they consider it a supernatural manifestation.^{13 14}

Surprisingly, even in 400 BC, Hippocrates provided realistic descriptions of epilepsy. He explained that the odd sensations, feelings and behaviours related to epilepsy are symptoms of a brain disorder. However, these statements from Hippocrates were ignored by society. Epilepsy continued to be linked to superstitious beliefs. Even in the 21st century, there is ignorance regarding the real cause of epilepsy,¹⁵ and some individuals continue to believe that it has supernatural causation. Even today, some individuals consult both a neurologist and

faith healers for the treatment of epilepsy.¹⁶ The attitude of our index family was also ambivalent, as the parents consulted both medical practitioners and faith healers.

Cumbersome allopathic treatment protocol and its limitations

Treatment of patients with epilepsy remains a public health challenge for both doctors and the families of patients. Physicians find it difficult to convince some patients that epilepsy can be completely cured using allopathic medicine. Bizarre movements of the body during seizures evoke fear in the public, as well as in the patient's family members, who often consult faith healers.^{15 16}

Many research studies on epilepsy, including systemic reviews and meta-analyses, have been performed. In addition, many standard operating procedures (SOPs) have been formulated to maintain the uniformity and standardisation of treatment across different health facilities.³

In modern medical practice, physicians rely more on technology for the diagnosis and treatment of patients. Due to overcrowding in hospitals, inadequate time is devoted to patient and caregiver counselling. This leads to dissatisfaction in patients and caregivers. Many patients do not strictly follow instructions from doctors.¹⁷ In our case, a 'vacuum' (information gap) was created. This vacuum was effectively filled by the faith healer.

Epilepsy is reported to be successfully treated by antiepileptic drugs, which can control seizures in 70%–80% of cases. In the remaining 20%–30% of cases, the seizures remain uncontrolled.¹⁸ Antiepileptic drugs do not cure epilepsy, but rather prevent the occurrence of seizures. These drugs do not even guarantee complete prevention of seizures.¹⁹ Therefore, most affected families do not rely exclusively on allopathic medication and also resort to alternative therapies.¹³

In a nutshell, the significant developments in medical science are not sufficient to answer epilepsy therapy-related questions from laypeople.²⁰ This is because multiple behavioural, cultural and social factors are associated with this disease.¹⁸

In this case, the family migrated from Bihar to Chandigarh because the patient's father believed that epilepsy can only be cured through modern medicine. He did not have much faith in traditional healers. He perceived them to be unscientific, as they advocated practices such as slapping the patient and forcing her to sniff shoes to control her seizures.

However, the index patient experienced recurrence of her seizures during her allopathic treatment in Chandigarh. The patient's family found it difficult to adhere to the costly treatment protocols, which required regular hospital visits, MRI and blood tests. Moreover, the family was not reassured regarding a cure for the disease. Little or no counselling was provided for the patient due to overcrowding in the OPDs. Moreover, the allopathic treatment could not provide complete relief, and the patient continued to have seizures.

Various neurological studies have suggested that discontinuation of medications in the early phase of treatment may increase the possibility of seizure recurrence.²¹ This was the case with the patient described here, who had problems such as vomiting, likely due to the side effects of the medications. The patient's family was exasperated with the problems described above and decided to discontinue the treatment.

Faith healers are more acceptable to rural populations

There was no significant difference in seizure control following treatment by the faith healer in the village when compared with allopathic treatment in the city (ie, no perceived benefit

of allopathy). This led the patient's father to choose the former option. Moreover, treatment by the faith healers was less costly than the allopathic treatment and had no side effects. The family, thus, perceived no definitive benefit in the allopathic treatment. According to the family members, the faith healer devoted more time for consultations and was more cordial than the allopathic doctors in Chandigarh.

The health belief model, which can be used to determine whether a person performs a particular health behaviour to prevent or overcome a particular disease, can be used here to understand the above phenomenon. The health belief model posits that patient behaviour is influenced by five factors: perceived threat, perceived susceptibility, perceived severity, perceived benefits of action and perceived barriers to action.²² In this case, the family considered epilepsy a serious health problem. The patient's father also believed that allopathic treatment would cure his daughter (perceived benefit). However, perceived barriers such as the high cost of treatment, the lack of a human touch by the treating physicians, long waiting times, uncertainty regarding the outcome of treatment with modern medicine, the side effects and the complex treatment procedures forced the family to stop allopathic treatment.

The patient was treated in Chandigarh at different healthcare facilities, for example, civil hospital, UHTC and the tertiary care centre. The recurrence of seizures during treatment with modern medicine created a negative impression in the minds of the patient's parents.

Similar incidents occur daily in hospitals worldwide and are unnoticed and undocumented. As previously described, the treatment of patients with epilepsy has also vacillated between naturalistic healers (eg, neurologists and psychiatrists) and spiritual healers (eg, magicians and religious healers).¹⁶

In our case study, the patient's father initially had a positive attitude towards government hospitals as providers of epilepsy treatment. However, he was discouraged by the insistence of the doctors on cumbersome procedures (eg, frequent blood tests and repeated visits). His opinion of the health system could have been enhanced by the receipt of appropriate early treatment for epilepsy by his daughter. This situation might have even provided an image-building opportunity for government health facilities. Instead, this opportunity was missed due to the focus on procedural matters. Thus, a patient who would have greatly benefited from government services was discouraged from their use. Such scenarios lead families of patients to harbour negative attitudes towards government health services.⁷⁻⁹ In this situation, the desired outcome or solution was difficult to attain because the treatment protocols were too cumbersome to follow by a poor and family with a low level of education. As a result, adherence to the prescribed treatment was compromised.

There is a difference in the conceptual framework of physicians and that of patients regarding the management of epilepsy. Patients are not able to understand the complex SOPs very much. As a result, adequate counselling is required in cases of epilepsy.²³

The desire to resolve problems using all possible alternative means in a natural human characteristic.²⁴ In this case, the family first consulted faith healers, then consulted modern physicians and returned to the faith healers for treatment.

CONCLUSION

In a nutshell, the complexity of epilepsy, the high cost of modern antiepileptic medicines and their side effects, the efficient but

cumbersome treatment protocols, and unpredictable treatment outcomes continue to force affected families to consult faith healers even in the 21st century.

Patient's perspective

Father: "Koi faida toh nahi hua-angregi dawai ke ilaj se. Daura pehela jaisa hi hai. Iss se accha hai usi jhaad phook wale se aaram toh aa jata tha. Angregi dawai se to ulta bhi hoti hai. Kya faida?" (There is no use of modern medicines. The seizure frequency is almost same. There was at least transient relief with the faith healers. Modern medicines cause vomiting.)

Mother: "Doctor saab, yeh दौरा kab bandh hoga? Paisa ka problem ho raha hai. Mujhe is bimari ke karan ghar se bahar nikalna para. Puja ki pitaji ab bahut chir chire rahate hai, aur gussa mujh pe nikalte hai." (Doctor, when will the seizure stop? We are facing financial problems. That's why I have to work outside also. My husband remains irritated all the time and often scolds me.)

Father: "Meri pyari beti pooja thik hogi ki nahi? Rat ko दौरा ke bajah se thik se nindh nahi ata hai. Har mahine mei aaspatal jana kise pasand hai? Ak to garib admi aur upar se kaam bandh. Bhagban jane uski padai, saadi kaise hogi? Kabhi kabar gussa ata hai fir man ko samjhata hoon ki aaspatal wale jarror thik karenge." (My lovely daughter will be cured or not? Due to night time seizure episodes, often we lose our sleep. I am a poor man and I have to stop working during her checkups. God knows how she will study and who will marry her? Often, I get irritated but then I console myself.)

Patient: "Mujhe kuch pata nahi chalti hai. Mujhe jada kuch problem nahi hai, kebal bar bar school bandh karna parta hai. Mere pitaji jada pyar mujhe karte hai." (I don't know about the episodes. I have to stop my school frequently. My father loves me a lot.)

Learning points

- ▶ Epilepsy is still a mysterious brain disorder to some individuals despite advances in modern medicine.
- ▶ The human touch is missing in the handling of patients with epilepsy during treatment using the modern medicine approach in outpatient departments.
- ▶ Elaborate standard operating procedures and treatment protocols without adequate support from doctor-patient communication coupled with the high cost of medicines and medical tests deprive the poor from the benefits of modern medications for epilepsy.
- ▶ Patients with epilepsy require proper care, counselling, follow-up, moral support and reassurance.
- ▶ Allopathic doctors are constrained in providing such care due to the high patient burden in overcrowded hospitals.

Acknowledgements The authors acknowledge Ajay Sharma, Shailesh Tripathi, Anant Ram and Mohan Thakur for their expert clinical inputs in this case.

Contributors SB and AS have conceptualised, written and edited the whole manuscript.

Funding The authors have not declared a specific grant for this research from any funding agency in the public, commercial or not-for-profit sectors.

Competing interests None declared.

Patient consent Parental/guardian consent obtained.

Provenance and peer review Not commissioned; externally peer reviewed.

© BMJ Publishing Group Ltd (unless otherwise stated in the text of the article) 2018. All rights reserved. No commercial use is permitted unless otherwise expressly granted.

REFERENCES

- 1 Kasper DL, Fauci AS, Hauser SL, *et al.* *Harrison's Principles of Internal Medicine* 19/E. 19 Edn. New York: McGraw-Hill Education / Medical, 2015:2770.
- 2 Global Campaign against Epilepsy, International Bureau of Epilepsy, International League against Epilepsy. *Atlas: epilepsy care in the world*. Geneva: Programme for Neurological Diseases and Neuroscience, Department of Mental Health and Substance Abuse, World Health Organization, 2005:91.
- 3 Haddad N, Melikyan G, Al Hail H, *et al.* Epilepsy in Qatar: causes, treatment, and outcome. *Epilepsy & Behavior* 2016;63:98–102.
- 4 DeGiorgio CM, Medina MT, Durón R, *et al.* Neurocysticercosis. *Epilepsy Curr* 2004;4:107–11.
- 5 Suryakantha AH. *Community medicine with recent advances*. New Delhi, India: Jaypee Brothers Medical Publishers (P) Ltd, 2014.
- 6 Obeid T, Abulaban A, Al-Ghatani F, *et al.* Possession by 'Jinn' as a cause of epilepsy (Saraa): a study from Saudi Arabia. *Seizure* 2012;21:245–9.
- 7 Bhattacharya S, Singh A. 'The more we change, the more we remain the same': female feticide continues unabated in India. *BMJ Case Rep* 2017;2017:bcr-2017-220456.
- 8 Bhattacharya S, Bashar MA, Singh A. So near, yet so far: access to safe abortion services remains elusive for poor women in India. *BMJ Case Rep* 2017;2017:bcr-2017-220980.
- 9 Bashar MA, Bhattacharya S, Singh A. Unsafe abortions in India: removing the bottlenecks. *Int J Med Public Health* 2018;8:42–4.
- 10 Winkelman MJ. Identifying the nature of shamanism. *Behav Brain Sci* 2018;41.
- 11 Horrigan B, Lewis S, Abrams DI, *et al.* Integrative Medicine in America—How Integrative Medicine is Being Practiced in Clinical Centers across the United States. *Glob Adv Health Med* 2012;1:18–52.
- 12 Ember CR, Ember MR, Peregrine PN. *Anthropology*. 14th Edn, 2014. (cited 13 Dec 2017).
- 13 Saxena VS, Nadkarni VV. Nonpharmacological treatment of epilepsy. *Ann Indian Acad Neurol* 2011;14:148–52.
- 14 Banchoff T, ed. *Religious pluralism, globalization, and world politics*. Oxford, New York: Oxford University Press, 2008:360.
- 15 Wolf P. Epilepsy: Science and superstition. 2008:21.
- 16 Bennett TL, ed. *The Neuropsychology of Epilepsy*. USA: Springer, 1992. (cited 18 May 2018).
- 17 Bhattacharya S. "Health system strengthening-focussing on referrals: an analysis from India". *JOJ Nursing & Health Care* 2017;2:1–3.
- 18 Löscher W, Schmidt D. Modern antiepileptic drug development has failed to deliver: ways out of the current dilemma. *Epilepsia* 2011;52:657–78.
- 19 Goldenberg MM. Overview of drugs used for epilepsy and seizures. *Pharm Ther* 2010;35:392–415.
- 20 Groenewegen A, Tofighty A, Ryvlin P, *et al.* Measures for improving treatment outcomes for patients with epilepsy—results from a large multinational patient-physician survey. *Epilepsy Behav* 2014;34:58–67.
- 21 Gafoor VA, Saifudheen K, Jose J. Recurrence rate of seizure following discontinuation of anti-epileptic drugs in patients with normal long term electroencephalography. *Ann Indian Acad Neurol* 2014;17:277–80.
- 22 Health Communication. *Health belief model*: Universiteit Twente. (cited 18 May 2018).
- 23 Bhattacharya S, Singh A. "Taste Modification" – A New Strategy for Reduction of Salt Intake among Indian Population. *Epidem Int* 2016;1:44–50.
- 24 SFAA. Chapter 7: Human Society. SFAA, 1982. (cited 18 May 2018).

Copyright 2018 BMJ Publishing Group. All rights reserved. For permission to reuse any of this content visit <http://group.bmj.com/group/rights-licensing/permissions>.
BMJ Case Report Fellows may re-use this article for personal use and teaching without any further permission.

Become a Fellow of BMJ Case Reports today and you can:

- Submit as many cases as you like
- Enjoy fast sympathetic peer review and rapid publication of accepted articles
- Access all the published articles
- Re-use any of the published material for personal use and teaching without further permission

For information on Institutional Fellowships contact consortiasales@bmjgroup.com

Visit casereports.bmj.com for more articles like this and to become a Fellow