INTERESTING CASES OF AUTOAMPUTATION

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Abstract:
An article appeared in a popular Tamil weekly, about two siblings in a village near Kancheepuram who had progressive auto-amputation of all digits. As a consequence, they were admitted in our hospital and were evaluated. History revealed that they had a younger sister who also had similar disease, which progressed and she died. Clinical examination revealed that the elder one had relatively normal fingers of both hands and auto-absorbed toes of both feet, and deep ulcers with secondary infection. The younger one had more severe deformities, affecting both upper and lower limbs with auto-absorption of almost all digits. Both of them also had stunted growth, Dry skin, absent axillary hairs, sparse pubic hairs and soft testes. They were extensively investigated and were found to have sensory neuropathy and abnormal levels of pituitary hormones. Biopsy of peripheral nerves was done which was reported as HEREDITARY SENSORY AUTONOMIC NEUROPATHY, and hormone assay confirmed hypopituitarism. The case report is presented because of the progressive nature of the disease, limited management options, good scope for research, rarity of the disease itself and its rare association with hypopituitarism.

Keyword: auto-amputation, hereditary sensory autonomic neuropathy, hypopituitarism

CASE REPORT
An article appeared in a popular Tamil Weekly about the occurrence of a ‘Danger Disease’ in a village near Kancheepuram. The article focused on a family where two brothers were found to have gradual loss of parts of limbs. As a consequence, they were admitted in our Hospital. The elder of the two, Named R, is aged 20 years. He is educated up to 9th standard. His studies were interrupted as he failed in his 10th standard. He was normal until the age of 8 years, when, an ulcer started over the bases of both great toes. After 1-2 weeks, spontaneous absorption and falling of both toes occurred. Over a period of 5 years, there was gradual resorption and falling of all toes.
of Right foot and I, IV and V toes of Left foot. Then he developed ulcer over heels of both feet. Later, Secondary infection and purulent discharge appeared and have been persisting for the past 7 years. There was no history s/o cranial nerve involvement, muscle weakness, Sensory impairment, autonomic disturbance, claudication, Raynaud’s phenomenon or skin hypopigmentation. Birth & Development History: Home delivery. Conducted by a local dai. No history of birth asphyxia. Developmental milestones – Normal. Family history revealed that there was H/o III degree consanguinity among parents, and his both siblings (one brother and one sister) were affected by similar illness. On examination, he was found to have Stunted growth (Decreased height for age), Pallor, Right leg edema up to the knee (Non-pitting, Non tender) and enlargement of Submandibular, axillary and inguinal nodes of both sides. Oral cavity – dental caries of multiple teeth present. There was no evidence to suggest Hansen’s disease- like hypopigmented skin macules, clawing of fingers, depressed nasal bridge or skin nodules. Local Examination revealed that in his right foot, all 5 toes were absent. Foot was swollen with pigmentation. Edema leg was present up to the knee. In his left foot, only II and III toes were present, and was swollen up to ankle with pigmentation. All digits were present in both hands.

PHOTOGRAPH SHOWING NORMAL HANDS AND AUTO-ABSORBED TOES

RIGHT HEEL WITH INFECTED ULCER

PHOTOGRAPH SHOWING NORMAL HANDS AND AUTO-ABSORBED TOES

RIGHT HEEL WITH INFECTED ULCER

LEFT HEEL WITH INFECTED ULCER

EXAMINATION OF CNS revealed that his Higher Mental Functions, Cranial nerves and Motor system were normal. Sensory system - Fine touch, deep touch, pain and temperature sensations were impaired over Right leg and Right forearm. Joint position sense was impaired. Vibration sense was normally perceived bilaterally. Cortical senses could not be tested due to defects in cutaneous senses. Examination of cerebellum, spine and cranium was normal. Tests for autonomic nervous system, like heart rate response to valsalva manoeuere, Heart rate variation with posture, BP response to sustained handgrip,
BP response to posture and BP response to deep breathing showed normal response. There was no peripheral nerve thickening. Examination of Cardiovascular, Respiratory systems and abdomen was normal. A thorough head to foot examination was done which revealed Stunted growth, Dry skin, Absent axillary hairs, Sparse pubic hairs and Soft testes. All relevant investigations were done, which showed that his Complete Blood Count was Normal, except for anemia (Hb 7.0 gms%). Renal Function Tests, liver function tests, serum calcium and serum uric acid were within normal range. Peripheral smear examination did not show any acanthocyte. Slit skin smear examination for Lepra bacilli was negative. Serum levels of Growth hormone, Prolactin, Cortisol, FSH, LH, Free T3, Free T4 and TSH were within normal limits. Serum Testosterone was found to be low. Nerve Conduction Study showed a normal nerve conduction velocity, normal conduction in motor nerves and Absence of Sensory Nerve Action Potential (SNAP) - sugg. of sensory neuropathy.

**CASE STUDY OF PATIENT 2:**
His name is RP, aged 18 years. He is educated up to 5th standard. He stopped going to school 5 years back. His disease started as a crack over the base of Right great toe at the age 6 years. Gradually, over a period of 1 year, all toes of both feet were lost. It also involved his digits which gradually resorbed, though partially. Ulcers developed over the feet of both sides with chronic infection. His history is the same as his elder brother. On examination, he was found to have Stunted growth, Pallor, Angular stomatitis, enlargement of Submandibular, axillary and inguinal nodes of both sides, and dental caries of multiple teeth. Local examination revealed that his right foot showed absence of all 5 toes. Foot was deformed with multiple fissures and cavi- tation. Trophic ulcers with pigmentation were present over the knees and ankles. His left foot showed changes similar to right foot. In his hands, all digits, except both thumbs, show varying degrees of resorption giving ‘pseudo clubbing’ appearance. There were no...
could not be tested due to defects in cutaneous senses. Examination of cerebellum, spine and cranium was normal. Tests for autonomic nervous system, like heart rate response to valsalva manoeuvre, Heart rate variation with posture, BP response to sustained grasp, BP response to posture and BP response to deep breathing showed normal response. There was no peripheral nerve thickening. Examination of Cardiovascular, Respiratory systems and abdomen was normal. A thorough head to foot examination was done which revealed Stunted growth, Dry skin, Absent axillary hairs, Sparse pubic hairs and Soft testes. All relevant investigations were done which showed that his Complete Blood Count was Normal, except for anemia (Hb 8.0 gms%). Renal Function Tests, liver function tests, serum calcium and serum uric acid were within normal range. Peripheral smear examination did not show any acanthocyte. Slit skin smear examination for Lepra bacilli was negative. Serum levels of Growth hormone, Prolactin, Cortisol, FSH, Free T3, Free T4 and TSH were within normal limits. Serum levels of Testosterone and LH was found to be low. Nerve Conduction Study showed a normal nerve conduction velocity, Normal conduction in motor nerves and Absence of Sensory Nerve Action Potential (SNAP) -sugg. Of sensory neuropathy.

PEDIGREE ANALYSIS
HISTORY OF THE THIRD DAUGHTER
Named A, she started to have similar disease with loss of toes starting from 11 years of age. She lost all her toes over a 1 year period. She then fell sick and bedridden. She had yellow eyes and high colored urine. Only native treatment was taken. Her general condition deteriorated with time, and she passed away 1 year back, at the age of 16 years.

DIFFERENTIAL DIAGNOSIS:
At this point of time, it is clear that our patients have Inherited polyneuropathy syndrome. The diagnostic possibilities to be considered are:
1. Charcot-marie-tooth disease type 2B
Charcot-marie-tooth disease, also known as Hereditary Motor and Sensory Neuropathy, is the most common form of inherited neuropathy (10). It is characterized by muscle weakness, wasting and sensory impairment. Foot deformities are common. In CMT 2B, there is prominent sensory loss with foot ulcerations. This subtype of CMT is clinically very similar to Hereditary Sensory Neuropathy Type 1 (7).
2. Hereditary Sensory and Autonomic Neuropathies
These are characterized by prominent sensory loss and variable autonomic features. There is no significant motor involvement. This is a definite possibility in our patients.
3. Hereditary Sensory Radicular Neuropathy of Denny Brown
This condition is characterized by loss of pain and temperature sensations in the feet with chronic ulcers associated with progressive deafness. It is inherited as autosomal dominant (12). Wide-spread loss of sensation with loss of digits, in the upper
limbs also in our second patient with no hearing loss, make this condition less likely in our patients.

4. Amyloid Neuropathy
The initial syndrome is primarily sensory—numbness, paresthesias, and very often, acral pain—signs that are mainly characteristic of involvement of small-diameter sensory fibers (loss of pain and thermal sensation). It is the painful aspect and the autonomic features discussed later that distinguish this disease from the other paraproteinemic neuropathies and indeed, from most other polyneuropathies. Weakness follows, initially limited to the feet but becoming more extensive as the disease progresses and eventually spreads to the hands and arms. Only later is there loss of mainly large fibers that mediate sensations of touch, pressure, and proprioception. Twenty-five percent of patients have carpal tunnel syndrome from infiltration of the flexor retinaculum. Exceptionally, patterns other than the painful and sensory predominant polyneuropathy have been associated with amyloidosis; preferential involvement of motor nerves, lumbar roots, plexopathy, and amyloidomas involving single nerves (sciatic, facial, trigeminal) have been reported. Autonomic involvement can be severe in amyloid neuropathy (familial or primary) and may become evident early in the course of the illness. An infiltrative amyloid myopathy also occurs as a rare complication of the disease; it presents as an enlargement and induration of many muscles, particularly those of the tongue (macroglossia), pharynx, and larynx. Progression of the illness is relatively rapid, the mean survival being 12 to 24 months. An indolent neuropathy that evolves over years is unlikely to be a result of amyloidosis. Death is a result of the renal, cardiac, or gastrointestinal effects of amyloid deposits, the manifestations of which are already evident in more than half of the patients who present with neuropathy. A nephrotic syndrome is also characteristic (11).

The clinical profile of our patients does not match with that of Amyloid neuropathy.

5. Inherited Polyneuropathies with a Recognized Metabolic Disorder

a. Refsum disease
disease can manifest in infancy to early adulthood with the classic tetrad of (1) peripheral neuropathy, (2) retinitis pigmentosa, (3) cerebellar ataxia, and (4) elevated CSF protein concentration. Most affected individuals develop progressive distal sensory loss and weakness in the legs leading to footdrop by their 20s. Subsequently, the proximal leg and arm muscles may become weak. Patients may also develop sensorineural hearing loss, cardiac conduction abnormalities, ichthyosis, and anosmia (10). The polyneuropathy is sensorimotor, distal, and symmetrical in distribution, affecting the legs more than the arms. All forms of sensation are reduced, often deep sensation more so than pain and thermal sense, and tendon reflexes are lost (11). Considering the absence of visual symptoms and cerebellar manifestations, this is less likely in our patients.

b. Abetalipoproteinemia (Bassen-Kornzweig Syndrome)
This is a rare autosomal recessive childhood disorder. Acanthocytosis of red blood cells is its identifying feature. The earliest neurologic finding is usually diminution or absence of tendon reflexes, detected as early as the second year of life. Later, when the child is first able to cooperate in sensory
testing, a loss of vibratory and position sense is found in the legs. Cerebellar signs (ataxia of gait, trunk, and extremities; titubation of the head; and dysarthria), muscle weakness, ophthalmoparesis, Babinski signs, and loss of pain and temperature sense are the other characteristic neurologic abnormalities, in more or less this order of frequency. Mental retardation, usually mild, occurs in some patients. Irregular progression occurs over a few years, and many patients are unable to stand and walk by the time they reach adolescence. Constriction of the visual fields and ring scotomata are manifestations of the macular degeneration and retinitis pigmentosa in some cases. Cardiac enlargement and congestive failure are serious late complications (11). The typical clinical profile of this disease is not seen in our patients.

c. Tangier Disease
This is a rare, familial, small-fiber neuropathy inherited as an autosomal recessive trait. The sensory loss is predominantly for pain and temperature and extends over the entire body; at times it is limited to the face and upper extremities, simulating syringomyelia ("pseudosyringomyelia"). Tactile and proprioceptive sensory modalities tend to be preserved. The polyneuropathy may come in attacks—that is to say, it simulates a recurrent process. Muscular weakness, if present, affects either the lower or upper extremities or both, particularly the hand muscles, which may undergo atrophy and show denervation by EMG. In a small number of patients there has been facial diplegia out of proportion to weakness elsewhere (11).

d. Fabry Disease (Anderson-Fabry Disease)
This is a sex-linked disorder caused by deficiency of beta-galactosidase A. This disorder is characterized by pain, which is usually the initial symptom in childhood and adolescence, often has a burning quality or occurs in brief lancinating jabs, mostly in the fingers and toes, and may be accompanied by paresthesias of the palms and soles. Changes in environmental temperature and exercise may induce pain in "crises," an identifying feature. These abnormalities are a result of the accumulation of glycolipid (ceramide trihexoside) in peripheral nerves, both perineurally and intraneurally, as well as in cells of the spinal ganglia and the anterior and intermediolateral horns of the spinal cord. Ohnishi and Dyck demonstrated a preferential loss of small myelinated and unmyelinated fibers and small neurons of dorsal root ganglia, and Cable and colleagues reported autonomic changes in other cases. Involvement of the sensory ganglia and the associated degenerative changes in the afferent fibers are thought to be the likely cause of the thermally induced painful sensory phenomena (Kahn) (11). Our patients did not have the classical pain associated with disease and had a different mode of presentation.

e. Metachromatic Leukodystrophy
In this metabolic disease, the congenital absence of the degradative enzyme sulfatase leads to massive accumulation of sulfatide throughout the central and peripheral nervous systems and to a lesser extent in other organs. The abnormality is transmitted as an autosomal recessive trait. Progressive cerebral deterioration is the most obvious clinical feature, but hyporeflexia, muscular atrophy, and diminished nerve conduction velocity reflect the presence of a neuropathy.
Early in the course of the illness, the weakness, hypotonia, and areflexia may suggest Werdnig-Hoffmann disease; in older children there may be a complaint of paresthesias and demonstrable sensory loss. Bifacial weakness has been reported but must be rare. Sensory and motor conduction velocities are greatly slowed similarly in all nerves (11). Our patients did not have any mental retardation.

f. Porphyric Polyneuropathy
A severe, rapidly advancing, more or less symmetrical and mainly motor polyneuropathy—often with abdominal pain, psychosis (delirium or confusion), and convulsions—may be a manifestation of acute intermittent porphyria. This type of porphyria is inherited as an autosomal dominant trait and is not associated with cutaneous sensitivity to sunlight. The metabolic defect is in the liver and is marked by increased production and urinary excretion of porphobilinogen and of the porphyrin precursor -aminolevulinic acid. The peripheral and central nervous systems may also be affected in another hepatic type of porphyria (the variegate type). In the latter, the skin is markedly sensitive to light and trauma, and porphyrins are at all times found in the stools. Both of these hepatic forms of porphyria are to be distinguished from the rarer erythropoietic (congenital photosensitive) porphyria, in which the nervous system is not affected. Since our patients have predominantly sensory neuropathy, the possibility of this disease is unlikely. Absence of the typical hypopigmented, anaesthetic macules, skin nodules, peripheral nerve thickening, negative slit skin smears and involvement in siblings showing genetic predisposition, make Hansen’s disease unlikely. To establish the diagnosis, we proceeded with peripheral nerve biopsy. Biopsy of Sural Nerve was done for the elder one and sample was sent to NIMHANS, Bangalore for Histopathological examination. The sample was reported as follows: "Section from the nerve shows a severe degree of loss of axons in all funicles with Schwann cell proliferation. There is no nerve inflammation. Kpal stain shows almost complete loss of myelinated fibres in all funicles, with an occasional surviving myelinated fibre. There are no regenerating clusters”. IMPRESSION: SEVERE CHRONIC AXONAL NEUROPATHY (END STAGE); COMPATIBLE WITH HSAN”. Final Diagnosis for both the patients was HERIDITARY SENSORY AUTONOMIC NEUROPATHY TYPE II WITH HYPOPITUITARISM.

DISCUSSION:
HSANs are rare, clinically and genetically heterogenous group of neuropathies characterized by prominent sensory loss and variable autonomic features, but without significant motor involvement. As they are not as common as Charcot-Marie-Tooth disease, they do not receive the same level of attention, but there have been major advances in the identification of the causative genes in the past decade (1). Currently, these neuropathies are divided into five main groups based on the inheritance, clinical features and the type of sensory neurons involved. The pronounced sensory loss in HSAN predisposes the patients to unnoticed, recurrent trauma, leading to neuropathic (Charcot) joints, nonhealing ulcers, infections and osteomyelitis resulting acral mutilations (acrodystrophic neuropathy).

Hereditary Sensory and Autonomic Neuropathy Type I:
HSAN type I is an autosomal dominat disorder that is the most common hereditary sensory neuropathy (4). Symptoms begin
in the second to fourth decade with sensory loss and subsequent tissue injury mainly affecting the feet and legs. Sensory loss initially affects pain and temperature perception more than touch-pressure sensation, but involves all modalities as the disease progresses. Autonomic involvement is limited to hypohydrosis. Patients present with calluses on the soles, painless stress fractures of the feet, neuropathic foot and ankle joints and recurrent plantar ulcers. If ulcers are neglected and become infected, severe acromutilation may result (acrodystrophic neuropathy). Lancinating or shooting pains are often prominent and are considered the hallmark feature of HSAN I. Distal muscle weakness and wasting are present in advanced cases. Variable neural hearing loss or rarely spastic paraparesis may be seen in HSAN type I. Some families present with burning feet or neurogenic arthropathy, suggesting clinical as well as genetic heterogeneity both within and between families with HSAN type I. SNAP amplitudes are reduced late in the disease. Motor conduction velocities remain normal, but CMAP amplitudes are reduced in advanced cases. Sural nerve biopsy confirms a severe loss of small myelinated axons and to a lesser degree of unmyelinated and large myelinated fiber. Pathological evidence of regenerative activity is usually minimal. HSAN type I has been mapped on chromosome 9q22.1-22.3. Mutations in the SPTLC1 gene encoding a subunit of serine palmitoyltransferase are identified in 90% of patients. These mutations result in increased de novo ceramide synthesis. Since ceramide plays a role in the regulation of programmed cell death, the neuronal degeneration in HSAN type I may be caused by ceramide-induced apoptosis. Molecular genetic testing for HSAN I is clinically available.

without linkage to chromosome 9q22 have been described, suggesting genetic heterogeneity. A subtype, HSAN 1B, is associated with paroxysmal cough, cough syncope and GERD. Additional features include hoarseness of voice and hearing deficit; motor involvement, acral mutilation and ulceration are usually absent. The association of cough and GERD is not unique to HSAN 1B, as it has also been associated with CMT2 with MPZ mutation. Differential diagnosis includes the other hereditary sensory and autonomic neuropathies (HSAN), especially HSAN II, as well as diabetic foot syndrome, alcoholic neuropathy, neuropathies caused by other neurotoxins/drugs, immune mediated neuropathy, amyloidosis, spinal cord diseases, tabes dorsalis, lepra neuropathy, or decaying skin tumors like amelanotic melanoma (2).

Hereditary Sensory and Autonomic Neuropathy Type II:
HSAN type II is recessively inherited and rarely begins later than infancy. All sensory modalities of distal upper and lower limbs, and to a lesser extent of trunk and face, are affected. The hands, feet, lips and tongue are at risk for mutilation because of generalized sensory loss and insensitivity to pain. Autonomic symptoms are minimal, and mental development is normal. There is loss of tendon reflexes. Rarely, associations with spastic paraplegia, retinitis pigmentosa, mild motor weakness or neurotrophic keratitis have been described. The clinical course is slowly progressive, with progressive axonal loss. SNAPs are absent. Sural nerve biopsy specimens show almost complete absence of myelinated fibers and reduced unmyelinated fiber populations. Mutations in the gene HSN2 on chromosome 12q13.33 have been described in Families without linkage to chromosome 9q22.
French Canadian families and others with this condition (5,8). All mutations result in a truncation of HSN2 protein with the protein loss or inactivation or both, causing the peripheral neuropathy. The exact function of HSN2 protein remains unknown, but it may play a role in the development or maintenance of sensory neurons or accompanying Schwann cells (8). In addition, mutations in KIF1A are also a rare cause of HSANII (9).

Hereditary Sensory and Autonomic Neuropathy Type III: (Riley-Day Syndrome)

HSAN type III or familial dysautonomia (FD) is an autosomal recessively inherited sensory neuropathy with prominent autonomic manifestations particularly affecting children of Ashkenazi Jewish ethnicity. Symptoms begin at birth and include poor sucking, uncoordinated swallowing due to esophageal dysmotility, episodes of vomiting, recurrent pulmonary infections largely due to oropharyngeal incoordination, attacks of fever, and cardiovascular instability. Emotional stimuli provoke episodic hypertension, profuse sweating, and marked skin blotching caused by defective autonomic control. Hypotonia in infancy contributes to delayed motor milestones. Later in childhood, hyporeflexia, insensitivity to pain, gait ataxia, stunted growth and scoliosis become apparent. Defective lacrimation (absence of overflow tears with crying), absence of fungiform papillae of the tongue giving it a smooth appearance and papillary hypersensitivity to parasympathomimetic agents are tell-tale signs. Patients with familial dysautonomia are susceptible to periodic autonomic storms, termed autonomic crises. These occur in 40% of patients usually in response to stress, either emotional or physical. They are also at risk to develop profound hypoxemia and tachypnea following anesthesia or with high-altitude travel as a result of diminished respiratory response to hypercapnia and hypoxia. In older patients clinical manifestations of orthostatic hypotension may become apparent but due to adaptation of cerebrovascular autoregulation rarely lead to syncope. As the children grow older, sexual maturation is delayed, but normal pregnancies have occurred and male patients have fathered children.

Motor NCVs are generally normal, whereas SNAP amplitudes are frequently reduced. A marked reduction in the density of unmyelinated axons and small myelinated fibers is seen in sural nerve biopsy specimens, even in the youngest patients. The number of neurons in the sympathetic, parasympathetic and spinal ganglia is reduced. The peripheral blood vessels also demonstrate lack of autonomic nerve terminals. Linkage studies have mapped the gene locus to chromosome 9q31-33. The diagnosis is established by molecular genetic testing of the IKBKAP gene, which encodes an essential protein named IKAP of the human elongation complex. The major FD mutation is a splice mutation that results in aberrant tissue-specific mRNA splicing. The elongator complex is thought to be involved in the regulation of cell surface transport of exocytosis, and its impairment results in the dysregulation of neural endocytosis. FD is a potentially life-threatening disorder with a high mortality rate due to aspiration pneumonia or autonomic crises. Improved supportive treatment has extended the survival of patients into adulthood. There is a greater than 50% probability for infants with familial dysautonomia to reach 30 years of age.

Hereditary Sensory and Autonomic Neuropathy Type IV: HSAN type IV is a rare autosomal recessive disorder characterized by congenital insensitivity to pain with anhidrosis leading to repeated episodes of fever, thick and calloused skin,
dystrophic nails, self-mutilating behavior, and mild mental retardation associated with emotional lability and hyperactivity. Tendon reflexes, muscle strength and SNAPs are preserved, but sympathetic skin responses are absent. Biopsy of sensory nerves shows selective total or near total loss of unmyelinated axons and small myelinated fibers. Confirmation of a neuropathic abnormality in cases of congenital indifference to pain without apparent neurological signs therefore depends on the morphometric study of unmyelinated and myelinated fiber populations in nerve biopsy specimens and is supported by quantitative sensory testing, and lack of sweating by the quantitative sudomotor axon reflex test. Intradermal histamine injection produces a wheal but no flare response. Skin biopsy has demonstrated a lack of intradermal nerve fibers and sweat glands devoid of nerve fibers. The gene locus for HSAN type IV maps to chromosome 1q21-22. Mutations in the NTRK1 (formerly known as trkA) gene encoding thyrosine Kinase receptor for nerve growth factor(NGF) have been described in patients with HSAN type IV. These findings indicate that the NGF-trkA system plays a crucial role in the development of unmyelinated nociceptive and sudomotor fibers. 

Based on the clinical features, our patients’ clinical profiles fit into HSAN Type II. Hypopituitarism results from impaired production of one or more of the anterior pituitary trophic hormones (10). Embryologically, the pituitary gland, skin and nerve are derived from Neurectoderm. Hence, overlapping of systems involved is expected, and rather inevitable in further course of career in life. The girl deceased at the age of 16 might have developed associated autonomic disorder with associated comorbid jaundice, which she would have succumbed to. 

Treatment and Management
Treatments for all these disorders are supportive (3). The prevention of stress fractures and plantar ulcers is of utmost importance. This can be achieved by meticulous foot care, avoiding barefoot walking, daily inspection of feet and shoes, and proper skin care with moisturizing lotions. Whenever plantar ulcers develop, weight bearing should be discontinued until the ulcers heal. Infusion of pamidronate, a bisphosphonate, has been suggested to be helpful in the management of Charcot’s neurogenic arthropathy. At present, no specific treatment effectively delays the progression of any of the HSANs. Growth hormone therapy has been shown to improve the height in a group of patients of familial dysautonomia, although these patients did not have growth hormone deficiency. By identifying associated endocrinopathy in patients with HSAN, replacement therapy can be initiated and may have a trophic effect, in addition to improving physiological, psychological and sexual functions.
CONCLUSION
HSAN associated with pituitary failure has not been described, except for a case report from NIMHANS, Bangalore published in Neurology Asia (6). A search of published literature did not find any report of an association between HSAN and hypopituitarism, other than the one mentioned above. The disabling mutilation associated with this condition warrants early diagnosis, proper health education and podiatric care.

References: