



Full Length Research Article

RELATION OF CERVICAL SPINE DISEASE IN PATIENTS OF SCALP DYSESTHESIA

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ABSTRACT

Background: Scalp dysesthesia is a common mode of presentation in rural West Bengal. The study aims at finding radiological correlation with imaging of cervical spine with the presenting symptoms.

Introduction: Most of these cutaneous pain symptoms are not attributed to any pathophysiology. The range of complaints vary widely from tingling, stinging to severe itching leading to scratch-itch cycle.

Methodology: The study used a cross-sectional, case control design with sample size n=40 with healthy volunteers (n=40) included for comparison. The OPD patients were interviewed by principal investigator (Psychiatrist) to find out any Axis I disorder corroborated by another psychiatrist. The radiological finding had been carefully analyzed by two residents and verified by senior faculty from Deptt of Radiology.

Results: The loss of curvature is significantly high among patient group (P=0.011). Comparison of cervical vertebra of both patient and control group showed that, there is no significant difference in between the patient and control group. Reduction of inter-vertebral disc found significantly high at the level of C4-5 (P= 0.033*) and C5-6(P= 0.012) in patient group in comparison to control group.

Conclusions: Scalp dysesthesia does not seem to follow a dermatomal distribution given that the most common location in the present study was C5-C6. The symptoms of scalp dysesthesia may be related to chronic tension placed on the occipitofrontalis muscle and scalp aponeurosis (galea aponeurotica) secondary to underlying cervical spine disease, rather than psychiatric causes.

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INTRODUCTION

Scalp dysesthesia is a cutaneous condition characterised by pain and burning sensations without objective physical examination findings. Dysesthesia can be described as a condition characterized by disagreeable sensation present with ordinary stimuli (McKay et al., 1994). Cutaneous dyasthesia syndrome is a disorder characterized by chronic cutaneous symptoms without objective findings.

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Patients complain of burning, stinging or itching which often triggered or exacerbated by psychological or physical stress. Koblenzer and Bostrom in 1994 described "Chronic cutaneous dysesthesia syndrome" as a clinical condition where patients presented with primary cutaneous complaint of dysesthesia (Koblenzer and Bostrom, 1994). Unexplained cutaneous symptoms frequently involve scalp and adjacent area but unfortunately they often misunderstood as tension type headache due to vague character. 'Scalp dysesthesia', the condition was first described by Hoss and Segall in 1998 as a cutaneous dysesthesia syndrome characterized by pruritus,

burning, stinging, or pain of the scalp in the absence of any other abnormal physical examination findings (Hoss *et al.*, 1998). Psychiatric causes have been reported in patients with chronic pain syndromes or cutaneous dysesthesia (Koblenzer *et al.*, 1992; Lynch, 1986; Feinmann *et al.*, 1984; Hampf *et al.*, 1987). In fact, chronic pain has been referred to as a "depressive equivalent" (Koblenzer *et al.*, 1992). Many of the chronic pain syndromes were initially thought to represent a psychiatric disorder only. However, one must be cautious when reviewing data describing a personality profile or a psychiatric disorder associated with any chronic condition, particularly a painful one (Bowers, 1995). A subset of chronic pain sufferers probably does have an underlying psychiatric illness causing their symptoms but physical causes are to be ruled out first. However, Bowers' 1995, believe that "most of the cutaneous/mucosal pain syndromes are not caused by psychological pathology." Continued research into the chronic pain syndromes now suggests that they may represent a neurologic dysfunction that in some cases is associated with a secondary psychiatric component.

In earlier studies regarding scalp dysesthesia found link with cervical spinal disease. Laura A *et al.*, 2013 described a series of 15 cases of cervical dysesthesia where 14 patients had cervical spine disease (Aghabeigi, 1992). Research in this field is lacking in recent and earlier literature moreover no systematic study was done at best of our knowledge. Due to the dearth of knowledge regarding the condition a well organized study is necessary. Focus of the present research is to study the relation and nature cervical spine disease in patients of scalp dysesthesia. (McGraw and Kosek, 1997; <http://www.icd10data.com/ICD10CM/Codes/R00-R99/R20-R23/R20-/R20.2> last accessed on 07/07/2016)

MATERIALS AND METHODS

This study was approved by the ethical committee of a tertiary Medical College of Eastern India, and all of the subjects signed an informed consent form. The patients did not receive any financial reward or compensation for participating in this study.

Table 1. Significance of scalp dysesthesia with Cervical spinal curvature

		normal	loss	X2	df	Conf int	p
Curvature	case	11	20	6.479	1	95%	0.011
	control	22	9				
C1	case	30	1	0.00	1	95%	1.00
	Control	31	0				
C1-2	Case	29	2	0.517	1	95%	0.472
	Control	31	0				
C2	Case	30	1	0.00	1	95%	1.00
	Control	31	0				
C2-3	Case	27	4	0.870	1	95%	0.351
	Control	30	1				
		normal	loss	X2	df	Confidence interval	p
C3	case	28	20	1.401	1	95%	0.237
	control	31	0				
C3-4	case	25	6	1.292	1	95%	0.256
	Control	29	2				
C4	Case	28	3	1.401	1	95%	0.237
	Control	31	0				
C4-5	Case	20	11	4.521	1	95%	0.033
	Control	28	3				
C5	Case	27	4	0.870	1	95%	0.351
	Control	30	1				
C5-6	Case	17	14	6.341	1	95%	0.012
	Control	27	4				
C6	Case	28	3	1.401	1	95%	0.237
	Control	31	0				
C6-7	Case	27	4	2.712	1	95%	0.246
	Control	30	1				
C7	Case	29	2	3.316	1	95%	0.246
	Control	31	0				

Table 1. Common dermatological disorders associated with scalp dysesthesia

1. Prurigo nodularis	2. Psoriasis	3. Seborrheic dermatitis
4. Androgenic alopecia	5. Telogen effluvium	6. Xerostomia due to Sjogren's syndrome/ Vitamin deficiency/Diabetes.

Table 2. Common medical condition to be differentiated with Scalp dysesthesia

1. Temporal arteritis	2. Tension type of headache	3. Major depressive disorder
4. Generalized anxiety disorder.	5. Chronic fatigue syndrome.	6. Fibromyalgia
7. Chronic pain syndrome (erythromyalgia, reflex sympathetic dystrophy).	8. Dysthymia.	9. Burning mouth syndrome.
10. Trigeminal neuralgia	11. Post herpetic neuralgia.	12. Body dysmorphic disorder.

Table 3. Common symptom clusters with Scalp dysesthesia

1. Burning with initial transient pruritus.	2. Pain, burning, stinging.	3. Tightness (like a helmet wearing in my head/ worsened).
4. Pain with combing and cold, formication, tight feeling.	5. Pain, tenderness and burning.	6. Constant soreness, occasional burning.

The study used a cross-sectional, case control design. Patients presented with vague discomfort, uneasy sensation, crawling or tingling sensation over scalp area in the outpatient department of dermatology were included in the study. Initially all patients were examined properly by a senior consultant dermatologist to exclude any detectable physical cause. Patients were also examined extensively by the principal investigator (consultant psychiatrist) for presence of any psychiatric condition by using criteria of International classification of diseases 10th edition (ICD-10). (Cotterill, 1981) All patients, who have been diagnosed as a case of cervical dysesthesia were undergone a radiological examination of cervical region by X-Ray of antero-posterior and lateral view. Every radiological examination was reported by two radiologist residents and thoroughly evaluated by a senior consultant radiologist from the faculty.



Figure 1. Scalp dysesthesia resulting in scratch-itch cycle and patchy hair loss

RESULTS

A total 40 patients attained the dermatology OPD with vague scalp complains like tingling, itching or burning sensation for variable duration. Patients were examined by the consultant dermatologist but failed to detect any dermatological abnormality. Patients were asked for informed consent regarding present study and 31 among them given written informed consent. They were referred to psychiatry OPD to rule out psychiatric problem. In psychiatry OPD patients were examined by a consultant psychiatrist and 4 patients found to be suffering from mild depression and 5 patients from anxiety disorders not otherwise specified according to ICD-10 diagnostic criteria. All patients were undergone X-Ray of cervical spine both AP and Lateral view. Similarly 31 normal volunteers were drawn from the community and written informed consent received taken from them. Normal volunteers were assessed for physical and psychiatric problems.

Results from both the patients and control group were compared. Patient and control group were compared according to their age, and no significant difference was detected between the two groups. Comparison of X-Ray cervical spine showed that loss of curvature is significantly high among patient group (P=0.011). Comparison of cervical vertebra of both patient and control group showed that, there is no significant difference in between the patient and control group. Reduction of inter-vertebral disc found significantly high at the level of C4-5 (P= 0.033*) and C5-6(P= 0.012) in patient group in comparison to control group (Table 1).

Conclusion

Scalp dysesthesia is common in clinical practice. In 1981 Cotterill first described 28 patients as “dermatologic non-disease”. (Koblenzer *et al.*, 1994) Scalp dysesthesia does not seem to follow a dermatomal distribution given that the most common location in the present study was C5-C6 (Table 1). It has been hypothesized that the symptoms of scalp dysesthesia may be related to chronic tension placed on the occipitofrontalis muscle and scalp aponeurosis (galea aponeurotica) secondary to underlying cervical spine disease, rather than psychiatric causes. (McKay *et al.*, 1994) The present study determined that cervical spine disease is clearly associated with cervical dysesthesia. (Huang *et al.*, 1996) Burning or itching of the scalp is a very common dermatological complaint and most commonly occurs due to seborrheic dermatitis or psoriasis. (Headington, 1993) Stressful life events, anxiety and depression have been attributed with scalp dysesthesia. (Koblenzer *et al.*, 1992) As like any pruritus, physical examination should be performed to exclude any dermatological changes like pustules, pediculosis, seborrheic dermatitis, allergic contact dermatitis and even lichen simplex chronicus. (McKay and Dysesthetic, 1993) Doxepin or Amitriptyline has been found to be effective in 11 patients in a case series. (Mellick, 1997).

The pathogenesis of this condition is unknown but attributed to local brachio-radial junctional causes and claimed to be relieved by Tab gabapentin. Some local pruritic syndromes like brachioradial pruritus and notalgia paresthetica have been attributed to this condition. Patients with scalp dysesthesia have exhibited abnormal cervical spine imaging findings and most common imaging finding is degenerative disc disease and other common radioimaging findings are anterolisthesis, osteophytic spurring, lordosis, kyphosis, and nerve root impingement. (Sulzberger *et al.*, 1960) Some of these patients are getting benefitted with antidepressants and most of the axis I diagnosis being Major depressive disorder, dysthymic disorder, generalized anxiety disorder and somatisation disorder. Sulzberger *et al* described that woman with ‘diffuse alopecia’ complained of associated ‘spotty tenderness, crawling, itching, burning, uncomfortable awareness’ etc. (Thornsberry *et al.*, 2013).

A careful history must be obtained in every cases of cervical dysesthesia and findings of cervical spine radioimaging must be corroborated to obtain more information about direct causal relationship. The limitation of the present study is that the sample size is only modest (n=40 in case arm versus n=31 in healthy control arm. In modern days, superior quality imaging techniques are now available like MRI which can provide more accurate information. Nevertheless, the present study generates sufficient useful information, findings of which warrants a large community based study.

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Conflicts of interests: None.

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