International Journal of Science and Research (IJSR)
ISSN: 2319-7064
Impact Factor 2024: 7.101

The Enigma of Neuralgia: A Diagnostic Odyssey

Dr. Sai Surya Teja B[1], Dr. Sai Vishnu Battu[2], Dr. Geethika Mouni M[3], Dr. Eswar G.[4]

[1]Assistant Professor, Department of General Medicine, Dr. Pinnamaneni Siddhartha Institute of Medical Sciences and Research Foundation, Chinnavutpalli, Gannavaram Mandal, Krishna - 521286, Andhra Pradesh, India
Corresponding Author Email: *surya. bamidipati9999[at]gmail.com*
ORCID: B: 0009 - 0005 - 5265 - 1408

[2]Junior Resident, Department of General Medicine, Dr. Pinnamaneni Siddhartha Institute of Medical Sciences and Research Foundation, Chinnavutpalli, Gannavaram Mandal, Krishna - 521286, Andhra Pradesh, India
Email: *saivishnubattu371999[at]gmail.com*
ORCID: 0009 - 0008 - 7466 - 2433

[3]Junior Resident, Department of General Medicine, Dr. Pinnamaneni Siddhartha Institute of Medical Sciences and Research Foundation, Chinnavutpalli, Gannavaram Mandal, Krishna - 521286, Andhra Pradesh, India
Email: *geethika. mouni[at]gmail.com*

[4]Professor Emeritus, Department of General Medicine, Dr. Pinnamaneni Siddhartha Institute of Medical Sciences and Research Foundation, Chinnavutpalli, Gannavaram Mandal, Krishna - 521286, Andhra Pradesh, India
Email: *eswar1952[at]gmail.com*

Running title: "The Enigma of Neuralgia: A Diagnostic Odyssey"

Abstract: ***Background: Exanthematous fever with vasculitis and neuralgia is a rare but significant clinical entity. This case involves a 67 - year - old male with diabetes mellitus and hypertension presenting with fever, rash, and left trigeminal neuralgia. The diagnostic challenge lay in identifying systemic small vessel vasculitis in the context of chronic illness. Methods: A detailed clinical evaluation was performed alongside laboratory investigations, skin biopsy, and MRI imaging. Multidisciplinary consultation with dermatology, neurology, and rheumatology specialists guided the diagnostic and therapeutic approach. Results: Investigations revealed normocytic normochromic anaemia, thrombocytopenia, leukocytoclastic vasculitis on skin biopsy, and chronic small vessel ischemic changes on MRI. The patient was diagnosed with small vessel vasculitis and trigeminal neuralgia secondary to exanthematous fever. Treatment with corticosteroids, neuropathic pain management, and supportive care led to symptomatic improvement. Conclusions: This case underscores the importance of comprehensive diagnostic evaluation and multidisciplinary management in systemic illnesses presenting with vasculitis and neuralgia. Early intervention can prevent complications and improve outcomes.***

Keywords: small vessel vasculitis, trigeminal neuralgia, exanthematous fever, multidisciplinary diagnosis, corticosteroid treatment

1. Introduction

A 67 - year - old male, resident of Pamarru, presented with a febrile illness associated with rash and neuralgia. His medical history included type 2 diabetes mellitus (27 years) and systemic hypertension (10 years). The case posed a diagnostic challenge, requiring evaluation by multiple specialties.

2. Clinical Presentation

The patient presented with a 6 - day history of fever, cough, and a 2 - day history of headache. The fever was moderate to high - grade, intermittent, and associated with chills, myalgia, and a painful erythematous rash over the chest and back. Cough was non - productive, with no significant diurnal or positional variation, and associated with a sore throat. The headache was insidious, progressively worsening, and described as dull and left hemicranial, with episodes of electric shock - like sensations radiating from above the left eye to the vertex (20–30 episodes/day, each lasting 1–3 minutes).

3. Systemic Review

There was no history of breathlessness, gastrointestinal symptoms, urinary complaints, neurological deficits, or visual disturbances.

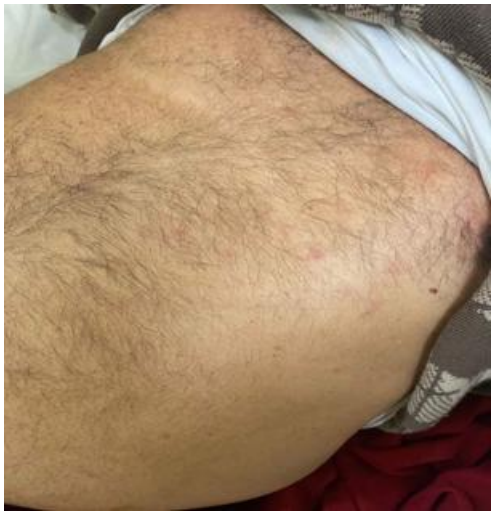
4. Examination

On examination, the patient was febrile (102°F), with a pulse rate of 120 bpm (regular), blood pressure of 120/80 mmHg, respiratory rate of 20 breaths per minute, and SpO2 of 95% on room air. A maculopapular erythematous rash was observed over the chest, abdomen, and back. Posterior pharyngeal wall congestion was noted. Cardiovascular, respiratory, abdominal, and neurological examinations were unremarkable, with no focal neurological deficits.

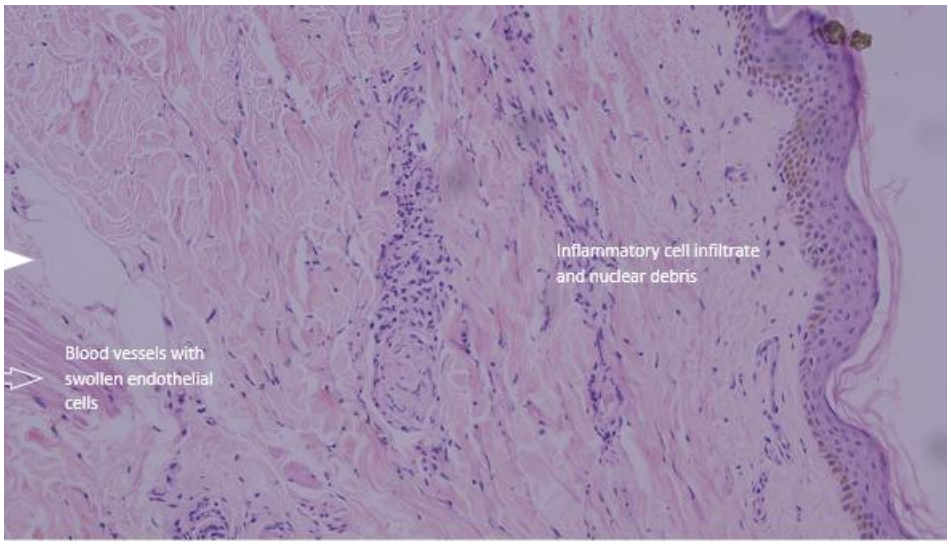
a) **Skin Biopsy:** Leukocytoclastic vasculitis characterized by superficial dermal blood vessel endothelial swelling, perivascular lymphocytic infiltration, and fibrinoid degeneration. DIF studies showed no deposition of immunoreactants.
b) **MRI Brain (Plain):**
Findings: Age - related cerebral atrophy with chronic small vessel ischemic changes. Few T2/FLAIR hyperintensities noted in bilateral periventricular and fronto - parietal white matter.

c) **Sputum Culture:** Positive for *Haemophilus influenzae*.
d) **Autoimmune Workup:** ANA and ANCA profiles were negative.

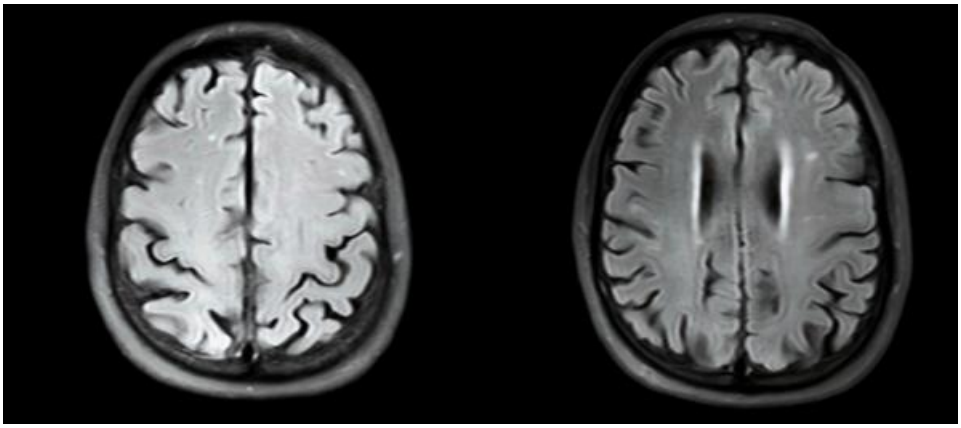
Hospital Course: During hospitalization, the patient developed joint pain and swelling. Dermatological evaluation revealed multiple non - blanching petechiae and erythematous plaques over the chest, abdomen, and lower limbs. Neurological evaluation confirmed left trigeminal neuralgia (ophthalmic branch). Ophthalmoscopy revealed a normal fundus. Based on clinical and histopathological findings, a diagnosis of exanthematous fever with small vessel vasculitis and trigeminal neuralgia was made.



Picture 1: A maculopapular erythematous rash was observed over the chest, abdomen



Picture 2: Leukocytoclastic vasculitis characterized by superficial dermal blood vessel endothelial swelling, perivascular lymphocytic infiltration, and fibrinoid degeneration. DIF studies showed no deposition of immunoreactants.



Picture 3: MRI Brain (Plain): Age - related cerebral atrophy with chronic small vessel ischemic changes. Few T2/FLAIR hyperintensities noted in bilateral periventricular and fronto - parietal white matter.

Table 1: Investigations of the Patient

	26/1/2023	27/1/2023	28/1/2023	30/1/2023
HB	11.4 gm/dl			
MCV	81.6 fL			
Platelet count	1.14 lakhs	0.98	1.06	1.73
PCV	33.4 %	32	31	30.6
TLC	5050 cells			6680

DLC	85/10/0/4.4/0.2			83.8/10.6/0.1/5.2/0.3
ESR / CRP	80 / 106			
S. Urea / S. creatinine	32/0.99			30/0.86
S. electrolytes	131/4.2/96			134/4.1/100
LIVER FUNCTION TESTS				
TOTAL BILIRUBIN	0.86 mg/dL			
DIRECT BILIRUBIN	0.37 mg/dL			
AST	54 U/L			
ALT	43 U/L			
ALP	76 U/L			
TOTAL PROTEINS	6.4 gm/dL			
ALBUMIN	3.9 gm/dL			
Complete urine examination				
RBC'S: 1 - 2 CELLS/HPF PUS CELLS: 1 - 2 CELLS/ HPF LEUCOCYTES: negative ALBU MIN: negative CAST: negative SUGAR: 2+				
• HbA1c: 6.9 % • DENGUE NS1 Ag: NEGATIVE • DENGUE IgM Ab: NEGATIVE • MPRDT: NEGATIVE • WEIL FELIX: NEGATIVE • LEPTOSPIRA IgM Ab: NEGATIVE • SCRUB TYPHUS IgM Ab: NEGATIVE • EBV - VCA IgM Ab: NEGATIVE • HIV: NEGATIVE • HBsAg: NEGATIVE • ANTI - HCV IgM: NEGATIVE				

5. Discussion

Terminal branch neuralgias are characterized by the presence of pain circumscribed to the territory of a terminal branch of the nerve and are accompanied by signs of nerve dysfunction such as allodynia, hyperalgesia or hypoesthesia[1, 2]. The Second Edition of the International Classification of Headache Disorders (ICC - 2) added the cessation of pain after selective anesthetic blockade as a criterion[3].

Among the most suggestive data of vasculitis are neuropathies, with mononeuritis multiplex being the one that most guides the diagnosis of vasculitis[4, 5]. Cranial nerve involvement is described in 0.7% of vasculitis, generally affecting the trigeminal and facial nerves[5]. To date, no terminal branch neuralgia has been described as a manifestation of systemic vasculitis. We present a case of terminal branch neuralgia of the trigeminal nerve secondary to systemic vasculitis, specifically trigeminal neuralgia, which was also the first manifestation of vasculitis. This case highlights that vasculitis - induced neuropathy commonly involves peripheral nerves but rarely affects cranial nerves. The trigeminal nerve, as in this case, may demonstrate involvement due to ischemic changes from small vessel vasculitis. Furthermore, trigeminal neuralgia, while most commonly idiopathic or associated with vascular compression, may rarely be secondary to systemic inflammatory processes, as observed here.

The presence of Leukocytoclastic vasculitis on skin biopsy corroborates the systemic nature of the disease, emphasizing the need for comprehensive evaluation in atypical neuralgia presentations. This case demonstrates the importance of recognizing systemic vasculitis as an aetiology in patients with unexplained cranial neuralgia and dermatological findings, ensuring timely and targeted intervention.

6. Conclusion

This case emphasizes the need for a thorough diagnostic evaluation in patients presenting with systemic symptoms and multisystem involvement. Early recognition and targeted therapy, including corticosteroids and symptomatic management, can significantly improve outcomes.

References

[1] JA Couple, J. Couple, J. Yangüela - Nummular headache, trochleitis, supraorbital neuralgia, and other epicranial headaches and neuralgia: The epicranias - J Headache Pain, 4 (2003), pp.125 - 131
[2] EL Cortijo, Á. L. Guerrero - Peral, S. Herrero - Velázquez, ML Peñas - Martínez, E. Rojo - Martínez, P. Mulero, et al. Nummular headache: Clinical features and therapeutic experience in a series of 30 new cases Rev Neurol, 26 (2011), pp.337 - 342
[3] Headache Classification Subcommittee of the International Headache Society. The international classification of headache disorders. cephalalgia.2004; 24 (1): 9 - 160.
[4] Gwathmey KG, Burns TM, Collins MP, Dyck PJ. Vasculitic neuropathies. The Lancet Neurology.2014 Jan 1; 13 (1): 67 - 82.
[5] Pérez - Beltrán CF, Garza - Zúñiga MJ, Isaías - Camacho JO, Andrade - Carmona V, Díaz - Greene EJ, Rodríguez - Weber FL. Vasculitis y sus manifestaciones neurológicas. Medicina Interna de México.2015 May 1; 31 (3).

[6] Méndez de Haro L, Guerrero Peral Á, García Azorín D. Supratrochlear neuralgia: First case of terminal branch neuralgia as the presenting symptom of vasculitis. Neurologia (Engl Ed).2020 Dec 11: S0213 - 4853 (20) 30420 - 5. English, Spanish. doi: 10.1016/j. nrl.2020.11.002. Epub ahead of print. PMID: 33317970.