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CASE REPORT

"A SHEEP IN A WOLF'S CLOTHING" - CASE REPORT OF TUBERCULAR AXILLARY LYMPH NODES MIMICKING METASTASIS IN A CASE OF BREAST CARCINOMA WITH BRIEF REVIEW OF LITERATURE

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ABSTRACT: "Appearances can be deceptive" – the saying holds true in our case where sinister appearing enlarged axillary lymph nodes draining breast carcinoma were surprisingly found to be tubercular. A 60-year-old nulliparous female presented with complaints of a right breast lump with no comorbidities. Examination and evaluation revealed a retro areolar non - metastatic breast carcinoma of clinical stage (cT2N1M0). Surprisingly, the operative specimen revealed all isolated lymph nodes to be free of tumor but with features of granulomatous lymphadenitis raising a suspicion of tuberculosis which was confirmed by further tests. On the basis of Multi-disciplinary Board (MDB) discussions and literature research the patient was started on anti-tuberculous treatment (Category-1) with adjuvant chemotherapy planned after the intensive phase. Problems of diagnosis and management arise when breast carcinoma and tuberculosis coexist in unique scenarios. Hence it would be worthwhile for the reading surgeon to keep an eagle eye on the lookout for such cases as wrong treatment strategies in such scenarios could prove disastrous. Major lacunae do exist in many aspects of managing such cases with larger studies being the way forward helping formation of standard guidelines to approach such complex encounters. We portray this case with a brief summary of similar published scarce literature and discussion on the various aspects of management of such coexistences based on the available literature evidence.

ABBREVIATIONS: MDB: Multi-disciplinary Board; TB: Tuberculosis; IDC: Invasive Ductal Carcinoma; FDG: Fluorodeoxyglucose.

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Impact statement: Established protocols of evaluation and management exist already in the various aspects of managing common disorders like breast carcinoma and tuberculosis but management aspects become complex when the disorders co-exist as naturally no fixed protocols exist in approaching these cases considering extreme rarity. This article describes this rare and unique case scenario with a summary of published scarce literature thus far with thought provoking new insights on the subject.

Key words: *breast carcinoma, tuberculosis, anti-tubercular treatment, case report, oncology.*

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INTRODUCTION

The famous Greek philosopher Anaxagoras once said "Appearances are a glimpse of the unseen" portraying the fact that external appearances seldom depict internal dangers. This saying holds true in coexistence of breast carcinoma and tuberculosis where in our case sinister appearing FDG avid axillary lymph nodes draining breast carcinoma, thought to be metastatic were surprisingly found to be tubercular altering management decisions. Literature search revealed less than 30 such cases reported till date deeming this coexistence to be distinctly rare (1-4). We present a case of invasive ductal carcinoma of the breast coexisting with ipsilateral tubercular axillary lymph nodal enlargement mas-

querading malignant infiltration with a brief discussion on the aspects of difficulties faced during evaluation and management of such cases with a brief review of scarcely available literature on the subject.

PATIENT INFORMATION

60-year-old nulliparous female presented with complaints of a right breast lump. She had no comorbidities nor any history of relevance per-

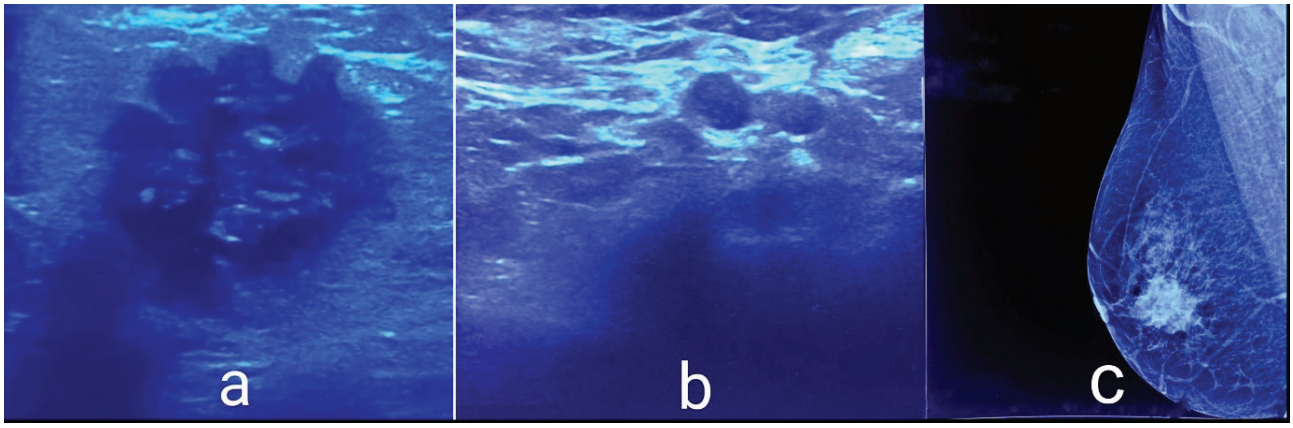

Figure 1. *Local Imaging.* ***a****. USG Breast showing well defined Irregular Hypoechoic lesion in the right breast with lobulated/angular margins and rich vascularity likely malignancy;* ***b****. USG Axilla showing Enlarged Hypoechoic lymph node in the axilla with loss of central hilum likely metastatic;* ***c****. Mammography of the right breast showing a BIRADS 5 retro areolar lesion.*

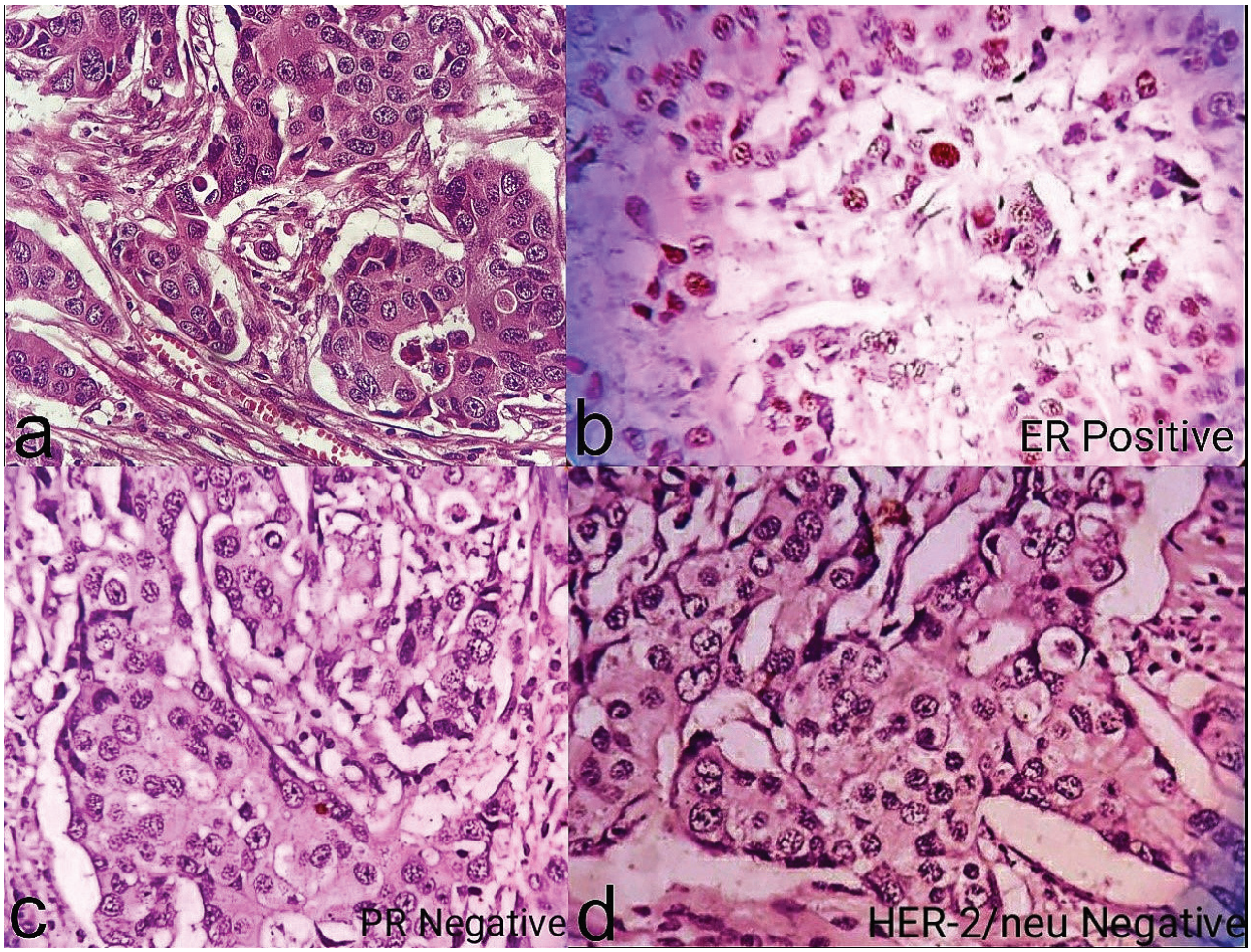

Figure 2. *Pathological evaluation of the right breast lesion.* ***a****. 40x magnification revealing invasive ductal carcinoma, no special type (NST);* ***b-d****. IHC images showing Luminal A status.*

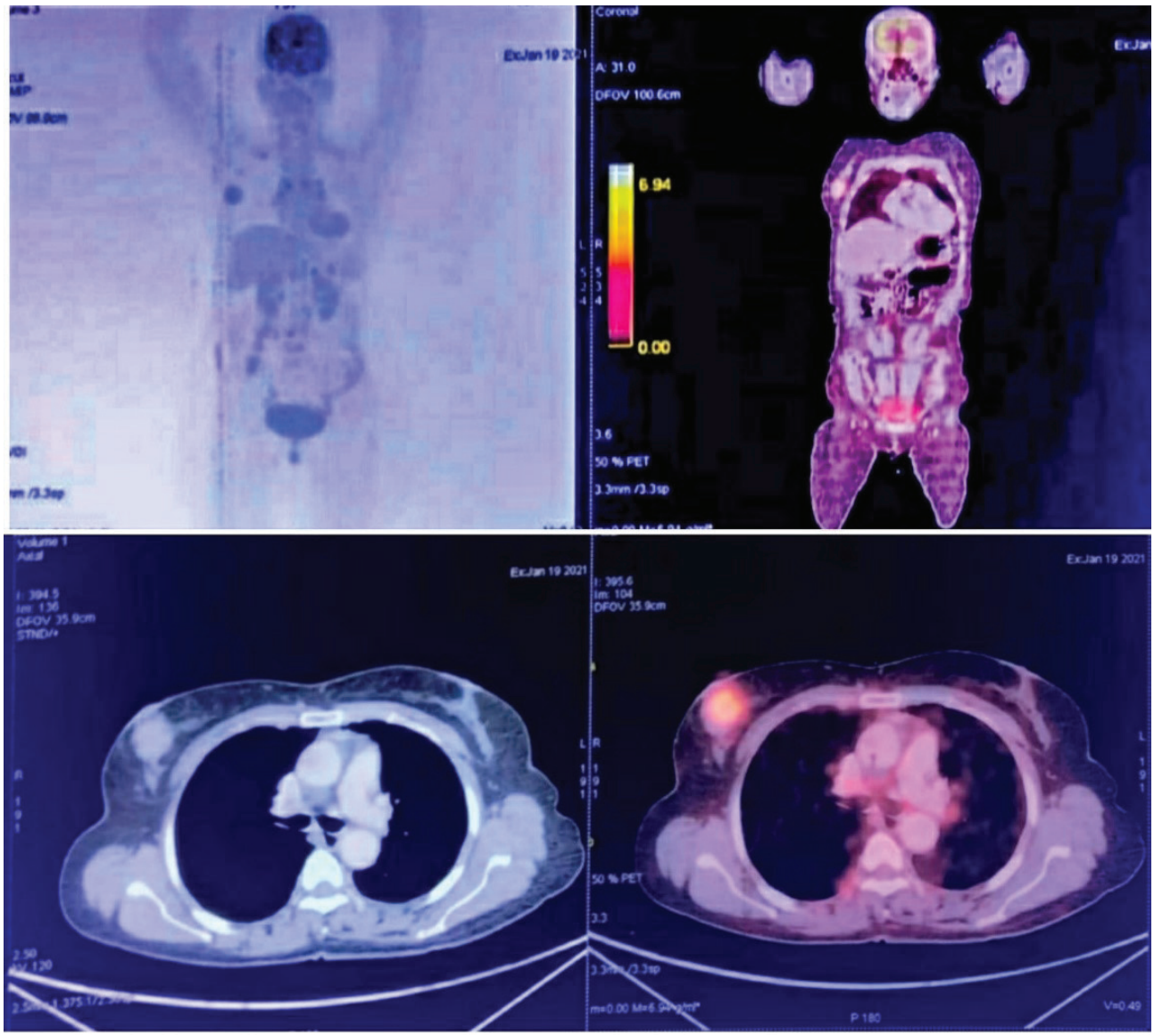

Figure 3. *18F-FDG PET-CT scan showing FDG avid heterogeneously enhancing central right breast mass involving the nipple areola complex with underlying pectoralis being free of tumor. Multiple enlarged FDG avid axillary lymph nodes in levels 1 to 3 largest measuring 2 x 1 cm.*

taining to the lump except a recently diagnosed hepatitis B infection for which she was started on Entecavir. Examination revealed a retro areolar lump of 4 × 3.5 × 3.5 cm dimensions and ipsilateral multiple mobile axillary lymphadenopathy with mammography and ultrasound axilla confirming the same **figure 1**.

Histopathology revealed Invasive Ductal Carcinoma (IDC) – No Special Type (NST) with Luminal A status **figure 2**. The patient presented to us with an 18F-FDG PET scan (**figure 3**) suggested to her by her referring physician that showed a FDG avid central right breast mass with multiple enlarged ipsilateral axillary lymph nodes with malignant characteristics reconfirming our clinical staging ($cT_2N_1M_0$). The disease was staged early breast carcinoma and a Modified Radical Mastectomy (MRM) was performed which revealed the same histology.

Surprisingly, all 26 lymph nodes isolated from the specimen were free of tumor but had features of *granulomatous lymphadenitis* raising a suspicion of tuberculosis (TB). Further Ziehl Neelsen (ZN) staining of the lymph nodes revealed acid fast *bacillus* compatible with TB **figure 4**. Discussion of this unique case was done in a Multi-disciplinary Board meeting (MDB) and with expert opinions from oncologists and literature research, the patient was started on anti-tuberculous treatment (Category 1) with adjuvant chemotherapy planned after the intensive phase.

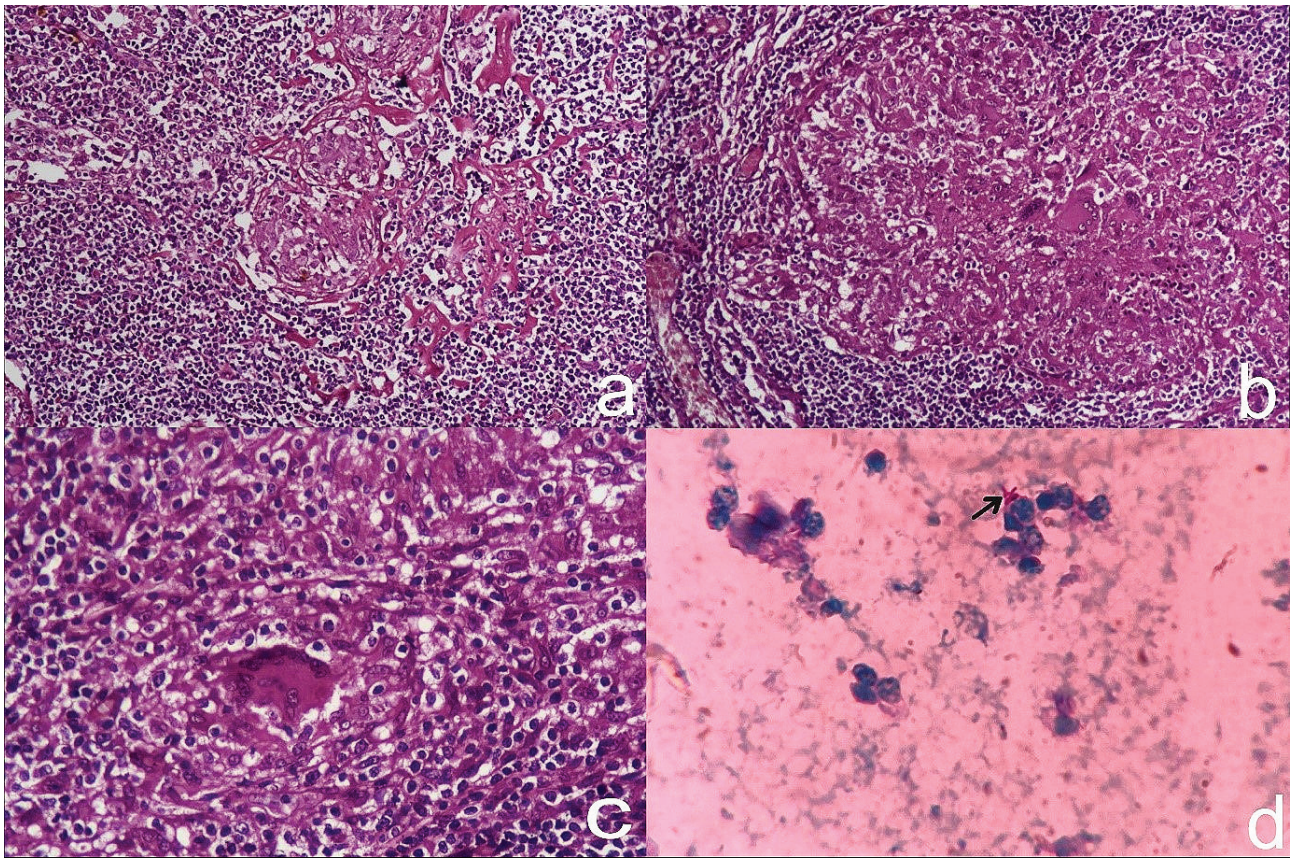

Figure 4. *Pathological evaluation of the right axilla.* ***a****. H&E staining showing granuloma with surrounding Lymph node parenchyma (10x Magnification);* ***b****. H&E staining showing granuloma with a giant cell (10x Magnification);* ***c****. H&E staining showing Langerhans giant cell in great detail (40x Magnification); d. Ziehl Neelsen staining showing acid fast bacilli suggestive of M. Tuberculosis (Arrowed marked).*

DISCUSSION

Despite the high prevalence of breast carcinoma and axillary tuberculosis in Asia, coexistence of both has rarely been reported in literature (1-4). As in most reported cases, the diagnosis of axillary tuberculosis in our case was also incidental and post-operative as there were no systemic evidence to provoke any suspicion towards tuberculosis during preoperative evaluation nor is the coexistence of TB with IDC common. Nevertheless, establishing a preoperative diagnosis of axillary tuberculosis in such cases does carry certain advantages, but diagnosing/suspecting coexistence preoperatively is difficult with the current diagnostic pathways utilised in breast carcinoma. The notable advantages of a preoperative diagnosis would include avoidance of a possible over staging of disease status leading to a change in both prognosis and treatment protocols (5, 6). Secondly of note other advantages would include avoidance of chronic wound complications associated with TB by early initiation of ATT prior to surgery. Finally, another major challenge in such cases would be problem of drug interactions between chemotherapeutic agents and anti-tubercular drugs (7) necessitating personalised therapeutic regimens as presently, no established guidelines exist to define treatment strategies in such unique situations. Literature search about similar rare case reports from the Asian subcontinent (**table I**) revealed certain common points noticed in most reports (8-18). Almost all reports excepting one (18) made the diagnosis post-operatively with individualised/personalised treatment protocols initiated on patient basis. ATT duration ranged from 6 months to 18 months with some authors preferring concurrent RT/CT (8, 9) while another school of thought of providing delayed adjuvant RT/CT after wound healing (11-17) also is being practised. Hence, on reviewing available literature, lacunae do exist in several aspects of management starting from diagnosing preoperatively to framing management protocols post diagnosis. This case reports also serves to add to the currently available scarce literature on the subject and also alerts the

Table I. *Review of similar Asian case reports on coexisting breast carcinoma and TB axilla.*

AUTHORS	AGE	LATERALITY	TB FOCI	MANAGEMENT STRATEGIES
Tulasi *et al*. (8) (Report of 5 cases) (2002)	36	Left	I/L Axilla	Simultaneous Adjuvant ATT & CT.
	49	Left	I/L Axilla	Simultaneous Adjuvant ATT & CT/RT.
	60	Right	I/L Axilla	Simultaneous Adjuvant ATT & CT/RT.
	60	Left	I/L Axilla	Simultaneous Adjuvant ATT & ET.
	81	Left	I/L Axilla	Simultaneous Adjuvant ATT & ET.
Vishnu *et al.* (9) (2020)	35	Left	I/L Axilla	Simultaneous Adjuvant ATT & CT followed by delayed CT.
Tallari *et al.* (10) (2016)	53	Left	I/L Axilla	Immediate Post-Operative ATT initiation.
Pujani *et al*. (11) (2015)	45	Right	I/L Axilla	Immediate Post-Operative ATT followed by CT/RT after wound healing.
Maharia *et al*. (12) (2015)	35	Right	I/L Axilla	Immediate Post-Operative ATT followed by CT/RT after wound healing.
Jagtap *et al*. (13) (2018)	50	Right	I/L Axilla	Immediate Post-Operative ATT followed by CT after wound healing.
Hariharan *et al*. (14) (2017)	71	Left	I/L Axilla	Immediate Post-Operative ATT followed by CT after wound healing.
Goyal *et al*. (15) (2013)	57	Left	I/L Axilla	Immediate Post-Operative ATT followed by CT/RT after wound healing.
Pandey *et al*. (16) (2003)	52	Left	I/L Axilla	Immediate Post-Operative ATT followed by CT/RT after wound healing.
Pandey et al. (17) (2014)	50	Left	I/L Axilla	Immediate Post-Operative ATT followed by CT after wound healing.
Mukhopadhyay *et al*. (18) (2015)	55	Right	C/L Axilla, Level 5 neck & Supraclavicular Regions.	Preoperative ATT Initiated followed Surgery and adjuvant RT.

TB: Tuberculosis; I/L: Ipsilateral; C/L: Contralateral; ATT: Anti-Tuberculosis Therapy; CT: Chemotherapy; RT: Radiotherapy.

reading surgeon to remain watchful in all cases of breast carcinoma and look out for such presentations as the axillary lymph nodal status in a histopathology report is often overlooked or ignored once the diagnosis of IDC is made.

COMPLIANCE WITH ETHICAL STANDARDS

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Conflict of interests

The Authors have declared no conflict of interests.

Availability of data and materials

All supporting data and materials elucidated in the manuscript is available with the Corresponding Author and the same would be shared for review upon request to the Corresponding Author.

Authors' contributions

TKA and NY were the responsible surgeons' in-charge of the overall care of the patient and on whom the final decision on the patient management rested. TKA and ZM wrote the first draft of the manuscript.

TKA, YN and AS were involved in day to day patient care and follow up.

ZM and AS provided insight and valuable inputs to the manuscript, collected references and were responsible for typography of final manuscript draft.

Ethical approval

Human studies and subjects

The informed consent has been obtained from the patient.

Animal studies

N/A.

Publication ethics

Plagiarism

N/A.

Data falsification and fabrication

N/A.

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