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Authors' Affiliation:
[1]MCh Post graduate student, Department of Surgical Oncology, Sapthagiri Institute of Medical Sciences and research center, Bengaluru, Karnataka, India
[2]Head of the Department, Professor, Department of Surgical Oncology, Sapthagiri Institute of Medical Sciences and research center, Bengaluru, Karnataka, India
[3]Associate Professor, Department of Surgical Oncology, Sapthagiri Institute of Medical Sciences and research center, Bengaluru, Karnataka, India

***Corresponding author**
Varun Kulkarni, Sapthagiri Institute of Medical Sciences and Research Centre, Chikkabannavara, Hesarghatta, Bangalore, Karnataka, India,
Email- 001varunkul@gmail.com

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Fishing for the correct diagnosis by a surgeon

Varun Kulkarni[1]*, Veerendra Kumar KV[2], Nataraj YS[3], Mustafa Firasath[1], Vishwas T[1]

ABSTRACT

Accidental ingestion of fish bone is commonly seen in populations that have fish as a staple diet. In most such cases, the foreign body will travel through the alimentary canal uneventfully without causing any complications such as hollow viscous perforation or obstruction. We are hereby reporting a case that presented with a palpable abdominal lump, the features of which were consistent with those of a soft tissue tumour. The importance of being vigilant in managing such cases cannot be overstated, as it is crucial to avoid intraoperative surprises despite thorough radiological evaluation. Thus, fishing for the correct diagnosis by a surgeon is essential.

Keywords: musculoskeletal MRI, anterior abdominal wall lesion, foreign body perforation, fish bone perforation, desmoid tumour

1. INTRODUCTION

The Desmoid tumours, despite being histologically benign, have a high local recurrence rate after resection. Desmoid tumours comprise 0.03% of all neoplasms and as high as 3% of soft tissue tumours. The biological behavior of desmoid tumours closely resembles benign fibrous lesions and fibrosarcomas (Teo et al., 2005). The name desmoid was first documented in 1838 by Muller. The etymology of desmoid tumours is derived from 'Desmos'. The Greek word "desmos" translates to "bond" or "link" and is used to describe tendinous structures. These types of tumors are categorized as extra-abdominal, abdominal wall, or intra-abdominal. Patients having familial adenomatous polyposis (FAP) show predominance of intra-abdominal variety.

People at the extremes of age and people with mental disabilities are noted to have a higher predisposition to accidental ingestion of foreign bodies (Coulier et al., 2004; Pinero et al., 2000). Elderly people with complete dentures are furthermore prone for foreign body ingestion due to diminished tactile in the mouth (Bunker, 1962). On radiographs, fish bones may show a spectrum of densities. As fish bones are often sharp-edged, injuries to the mucosal layer of the digestive tract are common. In severe cases, perforation can occur. Most of the foreign bodies ingested turn out to be harmless. These foreign bodies are usually expelled from the gastrointestinal system within a week. Untoward occurrences are noted in fewer than 1% of patients who have accidentally ingested a fish bone (Pinero et al., 2000; Goh et al., 2006).

Patients are often unaware of the ingestion of the foreign body and commonly develop nonspecific acute or chronic symptoms. Due to these reasons, the diagnosis of foreign body ingestion is challenging as both clinical and radiological evaluations may be inconclusive. The most typical finding that can point towards a perforation is the presence of pneumoperitoneum, but this is not frequently seen in cases of perforation due to FB. The radiological features of an FB may be diverse and nonspecific (Hunter & Taljanovic, 2003; Choi et al., 2014).

2. CASE PRESENTATION

A 77-year-old male presented to the emergency department complaining of pain in the abdomen for 15 days. On palpation, there was a mass in the left lumbar region, extending to the left iliac fossa and the umbilical region. The mass was 8 x 6 cm in size. The mass was mobile, and the surface over the mass was smooth. The margins of the mass were well appreciated. On percussion, a dull note was heard all over the mass. The vitals were normal. All routine blood investigations were within normal limits. MRI of the abdomen revealed a relatively well-defined lesion of size 3.3 x 7.4 x 4.9 cm noted in the anterior abdominal wall. The mass was epicentered in the rectus abdominis muscle, with extension into the peritoneal cavity. The lesion was abutting adjacent small bowel loops, with focal loss of fat plane. The radiological features were suggestive of desmoid tumour of the anterior abdominal wall. (Figures 1, 2 & 3).

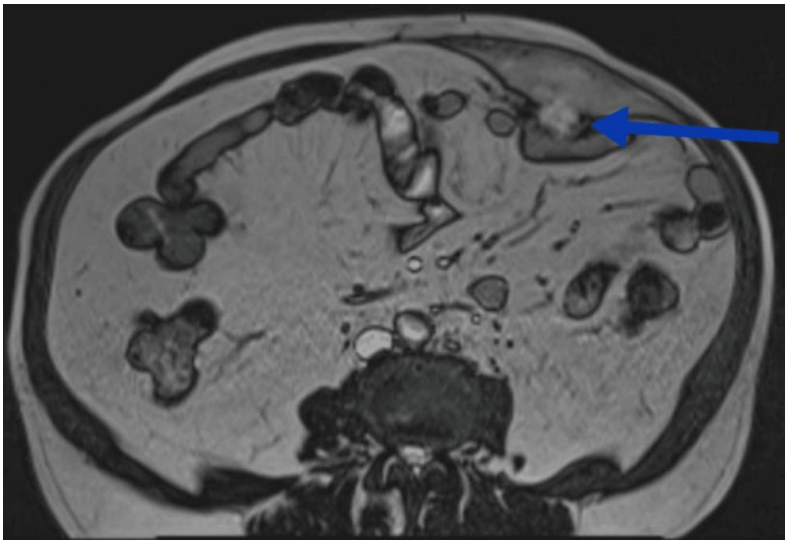

Figure 1 Axial view of MRI abdomen with blue arrow pointing at the lesion

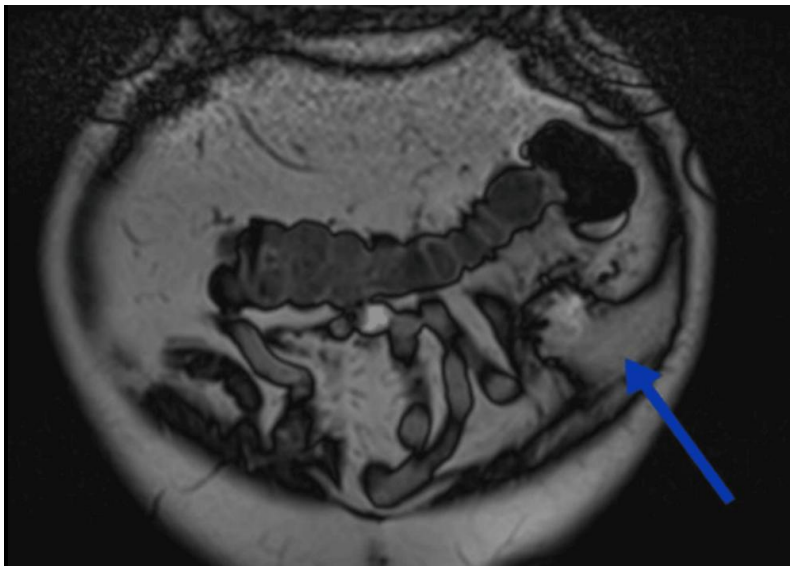

Figure 2 Coronal view of MRI abdomen with blue arrow pointing at the lesion

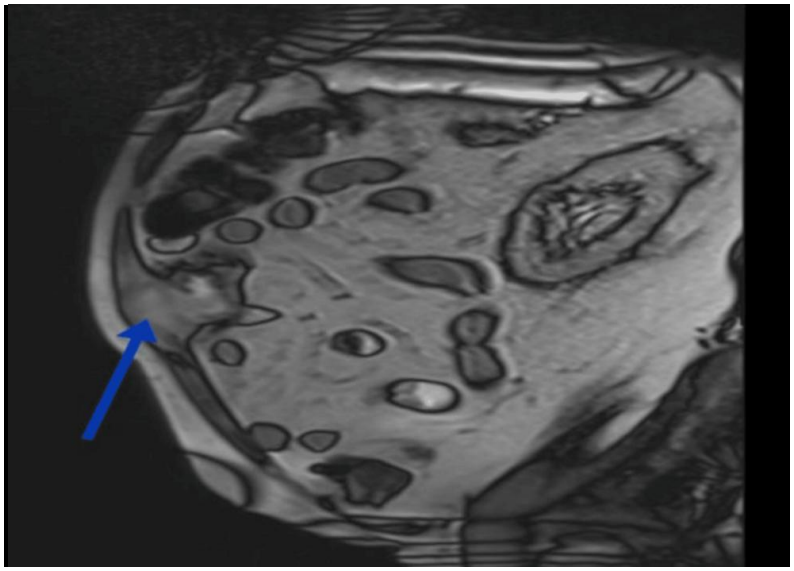

Figure 3 Sagittal view of MRI abdomen with blue arrow pointing at the lesion

Thus, the patient underwent wide local excision of the tumour. Intraoperatively, meticulous dissection was performed around the mass, maintaining a margin of 2 cm beyond the tumor margin (Figure 4). Excision of the omental pad of fat, which was attached to the mass, was done (Figure 5,6). There was evidence of fibrotic tissue and changes of chronic inflammation. On thorough examination of the epicenter of the mass, to the operating team's surprise, a fish bone was recovered. (Figure 7)

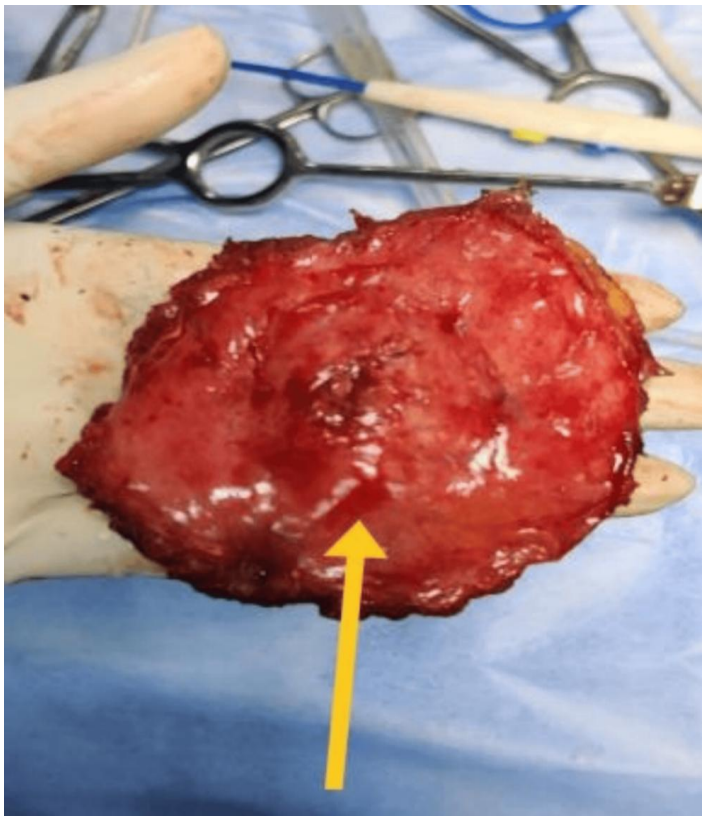

Figure 4 Resected specimen with yellow arrow pointing at the boundary of the palpable lesion

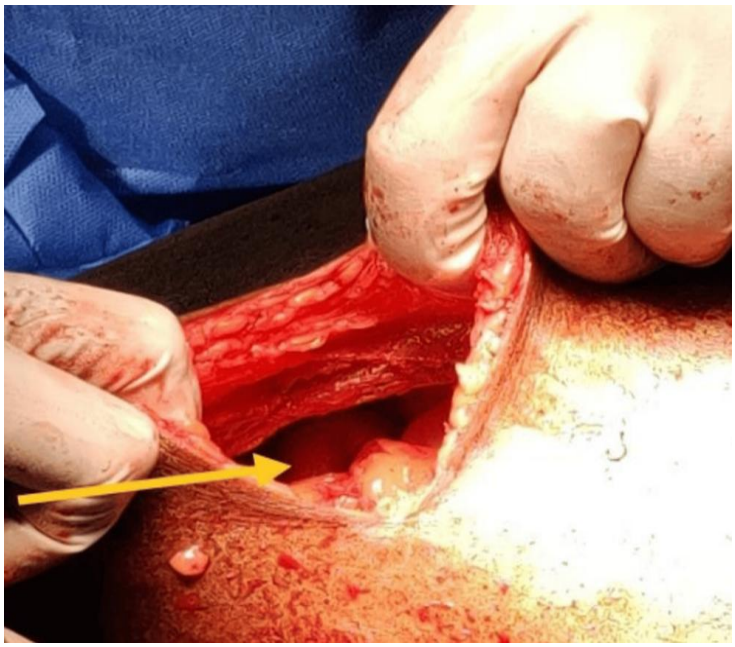

Figure 5 The defect formed after excision of the lesion with yellow arrow pointing at the defect

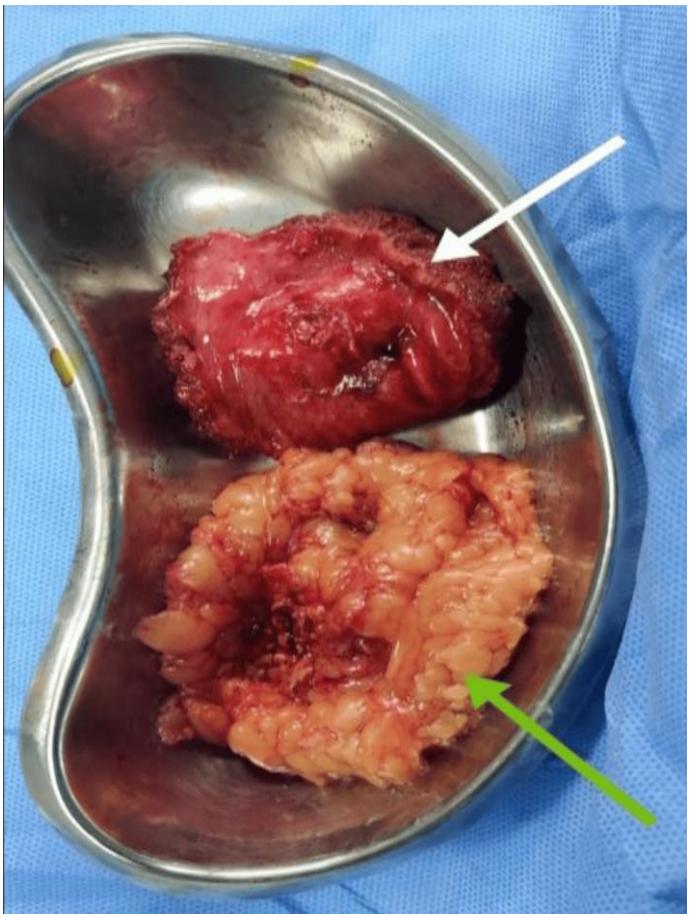

Figure 6 The resected part of anterior abdominal wall (white arrow) and the resected adhered omental pad (green arrow)

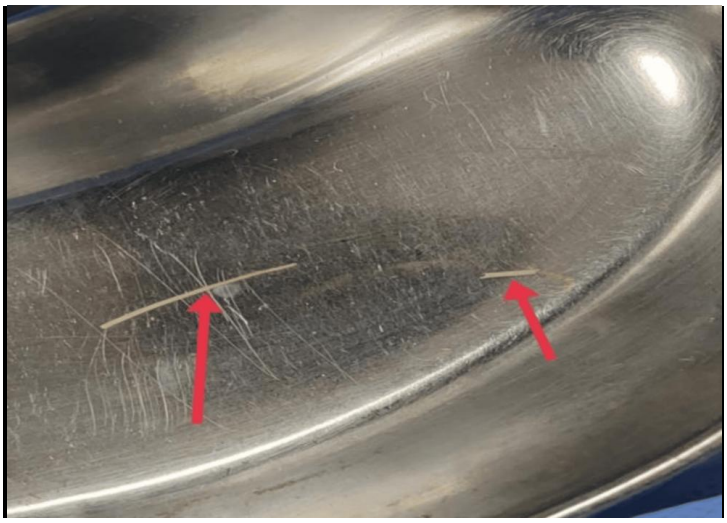

Figure 7 Parts of fish bone recovered from the epicenter of the lesion marked with red arrows

A thorough examination of the exposed bowel loops was performed, revealing normal findings with minimal adhesions and omental thickening. Our hypothesis is that the fish bone must have perforated and migrated though the layers of the bowel wall into the musculature of anterior abdominal wall. This would have incited a chronic inflammatory response and subsequent fibrosis.

The defect in the musculature was closed with sutures. The histopathological report of the specimen revealed evidence of chronic inflammation with granulation tissue in the superficial layers. The post-operative period was uneventful. The patient was discharged in a haemodynamically stable condition. As there was no evidence of malignancy, there was no role of any adjuvant therapy. (Figure 8, 9).

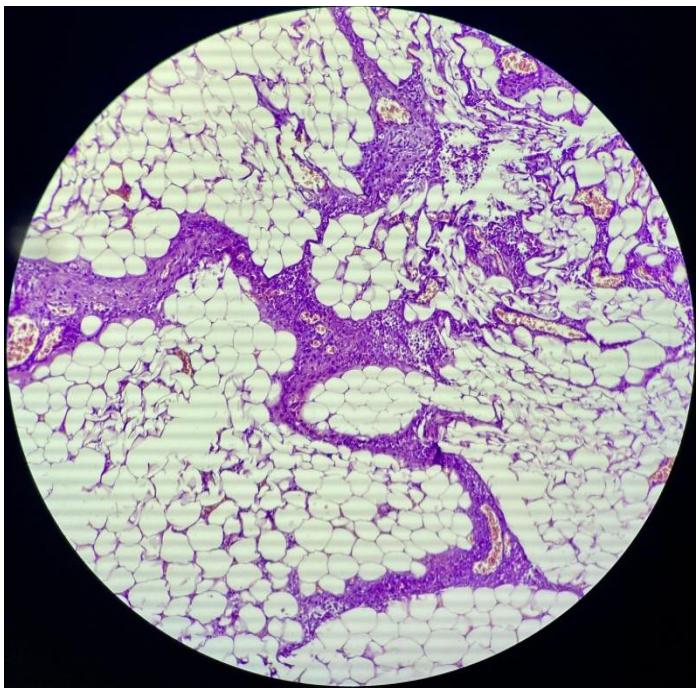

Figure 8 Microscopy image (40x) Lobules of mature adipose tissue separated by fibroconnective tissue.

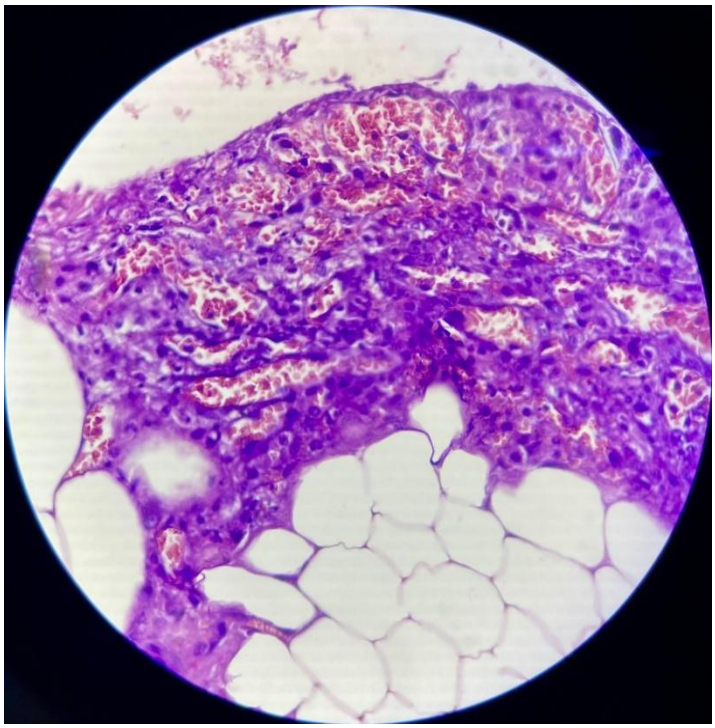

Figure 9 Microscopy image (400x) The fibroconnective tissue show dense mixed inflammatory cells infiltrate composed of: lymphocytes, plasma cells, foamy macrophages and few neutrophils along with plenty of congested blood vessels.

3. DISCUSSION

Desmoid tumour is a rare entity and has also been documented as aggressive fibromatosis. Approximately 3.7 new patients per million population per year exhibit extracolonic manifestations of familial adenomatous polyposis (FAP) (Teo et al., 2005). Desmoid tumours are fibrous neoplasms, commonly benign and can originate anywhere in the body from musculoaponeurotic structures. Abdominal wall desmoid tumours are known to arise from musculoaponeurotic structures. These mainly include the anterior abdominal muscles and their fascial coverings. Primary tumours of external oblique muscle and transversalis fascia are less common (Casillas et al., 1991).

Poor margination, heterogeneity on T2-weighted images, low-signal intensity on T1-weighted images, and variable contrast uptake are the characteristic MRI features (Lahat et al., 2009). The pattern and extent of involvement can be better appreciated in an MRI scan than a CT scan. MRI is more valuable in detecting recurrence in a patient with surgical excision. Small bowel perforation shows a preponderance in the area of the ileum and the ileocecal junction. The large bowel perforations commonly occur in the rectosigmoid junction (Teo et al., 2005; Ichikawa et al., 2020). This preponderance is supposed to be the change in bowel caliber. The transition between the relatively fixed portions (caecum and rectum) and the mobile portions (ileum and sigmoid) has been considered the primary cause of the abundance of perforations in these regions (Teo et al., 2005). Colorectal and colovesical fistula formation, bowel obstruction and gastrointestinal haemorrhage are also described complications (Teo et al., 2005).

A relatively uncommon site for such perforations is the small bowel, and has a reported incidence ranging between 9.5 and 14% (Goh et al., 2006; Sarmast et al., 2012). Perforations are abated by various properties of the intestines. A region of ischemic changes having a concavity in the center forms at the site wherever a pointed end insults the intestinal mucosa. In cases of sharp object ingestion, the head leads and the sharp end trails behind thanks to the flow of the intestinal content and the relaxation of the bowel wall, which, as such, decreases the chances of perforation (Choi et al., 2014; Goh et al., 2006). The typical signs of perforation, such as fat stranding, bowel wall thickening, features of bowel obstruction, and peritonitis, were not seen in our case. Thus, the diagnosis of a soft tissue tumour was favored due lack of evidence of foreign body perforation.

As per our research, this is an unusual presentation of a fish bone perforation. There were very few cases in the literature where the perforated foreign body presented as an anterior abdominal wall mass (desmoid tumour). This makes our case report a rare occurrence. Thus, we feel it would benefit fellow physicians encountering an anterior abdominal wall mass extending into the peritoneum, not to discount the differential diagnosis of foreign body granuloma. It could actually be a foreign body which started its journey and got caught in the fishhook at the rectus muscle of the anterior abdominal wall (Pisarevskii et al., 1974).

4. CONCLUSIONS

Patients presenting with complaints of a painless anterior abdominal wall mass and a soft tissue tumour on radiological evaluation favour the diagnosis of desmoid tumour. The most effective method of cure is a complete surgical resection. Especially in a giant desmoid tumour, there is a need for immediate repair of the resultant defect, which might warrant reconstruction with prosthetic mesh placement for better functional results.

Accidental ingestion of fish bone leads to a spectrum of gastrointestinal and extragastrointestinal complications. An old foreign body perforation might get closed by the innate mechanisms of the human body. The manifestations of foreign body perforation can develop into a chronic inflammatory granuloma, which may raise doubts about it being a soft tissue tumor. Thus, we want to point out that the possibility of an anterior abdominal wall mass can be a scenario that requires careful consideration of the correct diagnosis in a sea of diverse differentials.

Author's Contributions

All authors have reviewed the final version to be published and agreed to be accountable for all aspects of the work.
Concept and design: Varun Kulkarni, Veerendra Kumar K V, Nataraj Y S, Mustafa Firasath, Vishwas T
Acquisition, analysis or interpretation of data: Varun Kulkarni, Veerendra Kumar K V, Nataraj Y S, Mustafa Firasath, Vishwas T
Drafting of the manuscript: Varun Kulkarni, Mustafa Firasath, Vishwas T
Critical review of the manuscript for important intellectual content: Varun Kulkarni, Veerendra Kumar K V, Nataraj Y S, Mustafa Firasath, Vishwas T
Supervision: Varun Kulkarni, Veerendra Kumar K V, Nataraj Y S, Mustafa Firasath, Vishwas T

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Informed consent

Written & Oral informed consent was obtained from participant included in the study.

Ethical approval

Not applicable.

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Conflict of interest

The authors declare that there is no conflict of interest.

Data and materials availability

All data associated with this study will be available based on the reasonable request to corresponding author.

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