

Diagnostic difficulties of breast sarcomas at the Thiès Regional Hospital Center

Lamine Gueye, Thiam O, Gassama O, Bentefouet TL, Sarr AA, Alissoutin AP, Ba PA, Thiam M, Cisse ML

ABSTRACT

Introduction: Breast sarcomas are exceptionally rare, accounting for less than 1% of malignant breast tumors. Clinically, they typically present as unilateral breast masses that often grow more rapidly than epithelial breast carcinomas. Surgical excision remains the cornerstone of management. Prognosis depends primarily on histologic grade and the status of surgical margins, which are the main predictors of local recurrence.

Case Series: We report four cases of primary breast sarcomas treated in the Gynecology–Obstetrics Department of the Regional Hospital of Thiès. The mean age at diagnosis was 37.7 years. All patients presented with a large unilateral breast mass measuring between 4 and 32 cm, with rapid enlargement; two exhibited cutaneous fistulization. The three patients had undergone two biopsies due to the discrepancy between the clinical and histological results. Immunohistochemistry, which is very crucial for diagnosis, could not be performed due to lack of financial resources. All four underwent mastectomy with axillary lymph node clearance, with histologically negative margins. One patient experienced local recurrence following a palliative mastectomy performed on an ulcerated-necrotic breast. Adjuvant radiotherapy was recommended for three patients; one received it. One patient with metastatic condition received

adjuvant chemotherapy. The 3 patients diagnosed at T4N1M pulmonary stage died with an average overall survival of 10.6.

Conclusion: Primary breast sarcomas are diagnostically challenging, and any delay worsens prognosis. In our setting, mastectomy with axillary lymph node dissection represents the gold-standard treatment, especially in locally advanced or metastatic cases.

Keywords: Mortality, Recurrence, Sarcoma

How to cite this article

Gueye L, Thiam O, Gassama O, Bentefouet TL, Sarr AA, Alissoutin AP, Ba PA, Thiam M, Cisse ML. Diagnostic difficulties of breast sarcomas at the Thiès Regional Hospital Center. *Int J Case Rep Images* 2025;16(2):63–68.

Article ID: 101524Z01GL2025

doi: 10.5348/101524Z01GL2025CS

Lamine Gueye^{1,2}, Thiam O³, Gassama O⁴, Bentefouet TL^{1,2}, Sarr AA⁵, Alissoutin AP¹, Ba PA^{1,2}, Thiam M^{1,2}, Cisse ML^{1,2}

Affiliations: ¹Gynecology Department, Thiès Regional Hospital Center (CHRT), Thiès, Senegal; ²Health Sciences Training and Research Unit, Thiès, Senegal; ³Gaston Berger University, Saint-Louis, Senegal; ⁴Cheikh Anta Diop University, Dakar, Senegal; ⁵Gynecology Department, Tivaouane Hospital Center, Thiès, Senegal.

Corresponding Author: Dr. Lamine Gueye, Gynecology and Obstetrics Department, Thiès Regional Hospital, 1 Avenue Malick SY, PO Box: 34, Thiès, Senegal; Email: lamingueye@yahoo.fr

Received: 21 July 2025

Accepted: 16 September 2025

Published: 24 October 2025

INTRODUCTION

Primary breast sarcomas comprise a rare and heterogeneous group of non-epithelial malignant tumors originating from the mesenchymal tissue of the breast, representing under 1% of breast malignancies and less than 5% of all soft-tissue sarcomas [1–3]. Clinically, they manifest as a well-circumscribed, mobile, painless unilateral breast mass that grows faster than typical breast carcinomas [2]. Metastasis occurs via hematogenous route mostly to lungs, bone, and liver and rarely via lymphatics [1, 4]. Diagnosis is based on histopathology. Immunohistochemistry may prove invaluable in doubtful cases, in particular analysis of p53 and the Ki-67 proliferation index, overexpression of which clearly points to a malignant form [5]. Radiologically, findings are nonspecific: on mammography, these lesions appear

as opaque masses without classic features such as spiculation or microcalcification, often mimicking benign entities like fibroadenomas [6]. Surgical resection is the standard treatment. It can be either lumpectomy or total mastectomy, usually without lymph node dissection. Prognostic factors include histologic grade and margin status, which strongly influence local recurrence risk. The role of adjuvant radiotherapy and chemotherapy remains controversial [5] and should be evaluated via multidisciplinary panel [7].

CASE SERIES

Objective

Our aim was to evaluate diagnostic challenges in primary breast sarcoma cases managed at the Maternity Unit of Thiès Regional Hospital between April 1, 2021 and April 1, 2025.

Results

During the study period, we observed four cases of primary breast sarcoma among 285 breast cancer patients (1.4%). A summary of the four cases follows:

Case 1

An 18-year-old female patient presented with a right breast mass that had been present for two years. Examination revealed a hard mass covering the entire right breast, with a long axis measuring 9 cm, associated with an angioma on a 2 o'clock radius, and no axillary adenopathy (Figure 1). The left breast was normal. Ultrasound revealed heterogeneous, poorly vascularized tissue masses in the right breast, the largest of which measured 78, 33.1, and 24.1 mm, associated with a multitude of homolateral mammary nodes suggestive of lymphoma rather than hemangioma. Biopsy showed a vascular tumor of hemangioma or lymphangioma type, with no signs of malignancy. A second biopsy suggested a vascular tumor of moderate grade 2 malignancy, hemangioendothelioma type. Computed tomography (CT) scan revealed a large right mammary measuring 8 × 7 cm and 15 pulmonary nodules and micronodules suggestive of metastases, eight on the right and seven on the left. In addition, the soft-tissue and bone windows were negative. The patient was classified as T4bN1M pulmonary.

She declined mastectomy and was lost to follow-up for two months. She was readmitted in hemorrhagic shock, with a highly hemorrhagic ulcerated breast (Figure 2). Biological tests revealed anemia at 3.6 g/dL and hyperleukocytosis at 15,130/mm³, predominantly neutrophilic. A hemostatic pressure dressing, blood transfusion, and antibiotic therapy were performed, followed by a palliative mastectomy.

Histopathology confirmed the diagnosis. The patient was seen again after one month with a secondary presternal

localization (Figure 3). Cytology of the presternal mass and rereading of the mastectomy specimen concluded that it was a hemangioendothelioma. The patient received doxorubicin-based adjuvant chemotherapy but died 10 months after mastectomy from progressive pulmonary and osseous metastases.



Figure 1: Angioma on 14-hour radius.

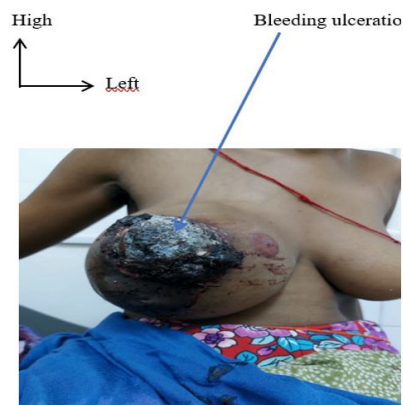


Figure 2: Severely hemorrhagic ulcerated breast.

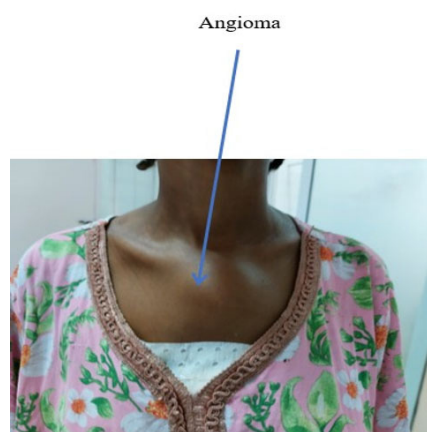


Figure 3: Presternal tumor mass.

Case 2

A 35-year-old (G8P8) presented with a tumor of the left breast. Examination revealed a 32 cm left breast mass, covering the entire breast, fixed to the overlying skin and mobile axillary nodes (Figure 4). The right breast and the other lymph nodes were clinically normal. Initial biopsy suggested a left breast fibroadenoma. In view of the discrepancy between clinical and histological findings,

a second biopsy considered adenocarcinoma versus low-grade phyllodes tumor. Thoracoabdominopelvic CT scan revealed multiple secondary pulmonary, bone and hepatic localizations. The patient was classified as metastatic T4bN1M. Given the rapid increase in tumor size and tendency to fistulize, we suspected breast sarcoma and decided to perform a mastectomy with left axillary clearance (Figure 5). Histology confirmed high-grade phyllodes sarcoma and the nine nodes of the clearance were negative. Radiotherapy was indicated but unavailable. The patient died 13 months post-mastectomy from progressive pulmonary, osseous, and hepatic metastases.



Figure 4: Left breast mass.



Figure 5: Left mastectomy.

Case 3

A 30-year-old nulligravida with neurofibromatosis presented with ulceronecrotic right breast tumor. Examination revealed a 23 cm ulceronecrotic right breast tumor with multiple mobile adenopathy (Figure 6). Ultrasound showed an encapsulated abscess-like mass with compartmentalized collection encompassing nearly the entire breast. Biopsy confirmed high-grade fusocellular sarcoma. Computed tomography scan identified ipsilateral axillary nodes and four pulmonary nodules suggestive of metastases. The patient was classified as metastatic T4cN1M. Right palliative mastectomy with axillary clearance was performed (Figure 7). Histology

confirming high-grade fusocellular sarcoma and the 11 nodes were free of malignant proliferation. Adjuvant chemotherapy was planned but was not carried out due to the patient's deteriorating condition. The patient died nine months later from local recurrence with multiple pulmonary and osseous metastases.

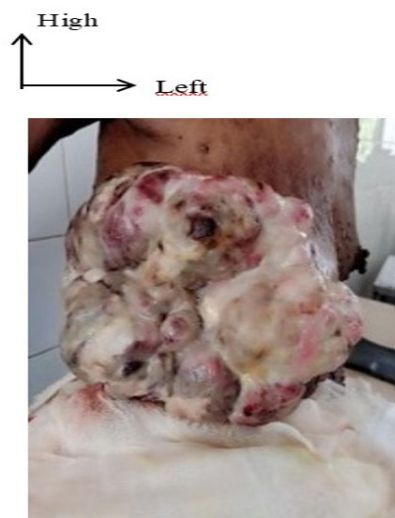


Figure 6: Ulceronecrotic tumor.



Figure 7: Mastectomy scar.

Case 4

A 68-year-old (G7P6) presented with left breast tumor. Examination revealed a suspicious 4 cm tumor on the 12 h-radius, 2 cm from the nipple. The right breast was clinically normal. Mammography coupled with breast ultrasound revealed tissue formation in the left breast with irregular contours, major axis not parallel to the skin at 12 o'clock, classified as ACR4 B (Figure 8), classified ACR4 B. Biopsy suggested a malignant indeterminate tumor, likely sarcoma. Computed tomography staging was normal. The patient was classified as T2N0M0. Left mastectomy with axillary clearance was performed (Figure 7). Histology confirmed the diagnosis (Figure 9) with epithelial and stromal proliferation with a predominance of the stroma suggesting a malignant phyllodes tumor (phyllodes

sarcoma), all nine lymph nodes free of malignant proliferation. The immunohistochemical study found a ki67 cell proliferation index of 30%. Adjuvant chest-wall radiotherapy was delivered. Postoperative course was uneventful, and the patient remains under regular follow-up.

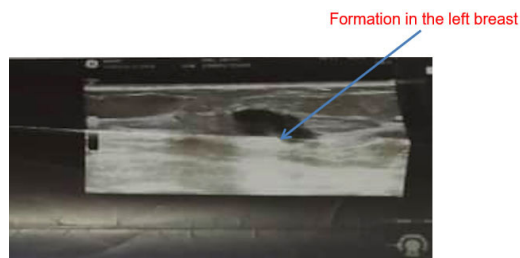


Figure 8: Ultrasound image of patient 4.

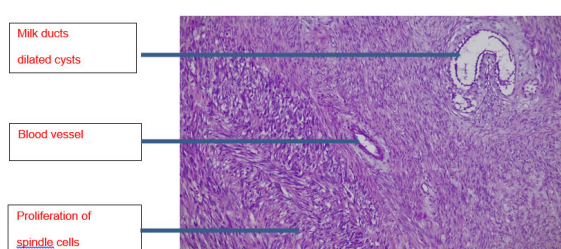


Figure 9: Malignant phyllodes tumor, HE stain, $\times 10$ magnification.

DISCUSSION

Primary breast sarcomas (PBS) are rare malignancies, constituting less than 1% of malignant breast tumors. In our series, we recorded 4 cases of primary breast sarcoma in 285 patients treated for breast cancer, i.e., a frequency of 1.4%. In comparison, Elhadja reported a prevalence of 0.3% [7].

In our series, the mean age of onset was 37.7 years. Our patients were very young compared with Elhadja's series, where patients were 46.8 years old. In fact, this profile is similar to that of patients treated for breast carcinoma at our facility: they are young, with an average age of 43.

All presented with unilateral rapidly enlarging masses (4–32 cm) with two causing cutaneous fistulization (Figures 2 and 6). This aligns with typical presentations reported by Trent II et al. with a unilateral, well-defined, mobile, and painless breast mass, often growing more rapidly than epithelial breast carcinoma [7, 8]. Self-examination of breast masses prompted all consultations (100% of cases). In Elhadja's series, self-examination of a rapidly growing breast mass was described in 97% of cases. The mean tumor size at first consultation was 17 cm and is explained by a delay in consultation and the rapid evolution of these tumors. This is consistent with existing literature with a range size from 4.8 to 12.5 cm; occasionally up to 41 cm [9]. Fields et al. reported that tumors size of over 5 cm was the only factor significantly

influencing the probability of overall survival at five years [10]. The latter was estimated at 83% for tumors smaller than 5 cm, versus 42% for tumors larger than 5 cm ($p = 0.041$). The left breast was involved in 2 cases and the right breast in 2; there was no bilaterality. We had observed diagnostic errors at the first biopsy for 3 out of 4 patients (75% of cases) and the clinic had allowed us to correct the diagnosis by performing a second biopsy. Immunohistochemistry is valuable in doubtful cases, particularly the analysis of p53 and the Ki-67 proliferation index [5], even if it was systematically requested, only one patient had it performed due to its high cost.

The thoracoabdominopelvic CT scan revealed secondary pulmonary localizations for the 3 patients received at stage T4N1M (pulmonary and/or bone). All four underwent mastectomy with axillary clearance and achieved negative margins (Figure 5).

The choice between conservative or radical treatment varies. Most authors agree on the need for wide surgery with healthy margins, given the major impact on local recurrence. In two large studies, after conservative surgery, 10-year relapse rates of 7–13% were observed for pure benign forms [11]. These low rates lead the authors to conclude that, depending on tumor size and breast shape, conservative treatment is perfectly acceptable, provided that RO margins (1–2 cm circumferential margin required) are achieved. Indeed, in the event of tumor residue, relapse rates increase markedly (up to 21%), with a risk of progression to a more aggressive histological form. The question of revision surgery in the case of invaded margins remains unresolved, especially as the majority of local relapses are rectified by mastectomy. We recorded one case of local recurrence after a palliative mastectomy performed on an ulceronecrotic breast, even though histology affirmed that the margins were clean (Case 3). In a review of the literature, Barth [12] found highly variable local relapse rates, depending on the type of surgery, margins and histology. These rates ranged from 8% for benign tumors with wide excision to 69% for malignant forms with "borderline" local treatment. Mastectomy with axillary clearance is not systematic in our practice in the face of sarcoma. We carried it out because our patients presented with lymphadenopathy and we wanted to have information on whether or not the lymph nodes were involved. According to O. El Amine Elhadj [7], the presence of lymph node involvement did not influence either overall survival or recurrence-free survival.

However, the quality of surgical resection significantly influenced overall survival: for example, in cases of satisfactory resection, the median survival time was 60 months, and it was 10 months in cases of borderline margins or involvement of the sectioned sections. The role of radiotherapy in the treatment of primary breast sarcomas remains controversial due to their rarity and the absence of randomized studies, but it is still the second therapeutic after surgery [9, 13]. In our series, three patients were recommended radiotherapy; only

one received it. Zelek et al. recommended extrapolating principles from soft-tissue sarcoma therapy [14] and recommended adjuvant radiotherapy to enhance local control. However, the latter contributed to a better local control rate in breast sarcomas, but did not improve overall survival [4]. Adjuvant chemotherapy was chosen for two of our patients, one of whom had received it in a metastatic situation. Indeed, adjuvant chemotherapy is strongly advised in breast sarcomas exceeding 5 cm and those of high histological grade, by extrapolation of the results observed in limb sarcomas [14]. Doxorubicin and/or ifosfamide are the most commonly used agents in the treatment of primary breast sarcomas [15].

CONCLUSION

Diagnosing primary breast sarcoma is challenging and any delay in management worsens outcomes. Histologic confirmation via biopsy was laborious in our first two patients. Valuable immunohistochemistry was rarely performed due to its high cost. Mastectomy with axillary clearance remains the gold standard, in our context especially for locally advanced or metastatic disease. Given the poor prognosis associated with tumors over 5 cm, high-grade histology and their propensity for early metastasis, adjuvant radiotherapy and/or chemotherapy should be considered routinely within a multidisciplinary setting.

REFERENCES

1. Pollard SG, Marks PV, Temple LN, Thompson HH. Breast sarcoma. A clinicopathologic review of 25 cases. *Cancer* 1990;66(5):941–4.
2. Terrier P, Terrier-Lacombe MJ, Mouriessse H, Friedman S, Spielmann M, Contesso G. Primary breast sarcoma: A review of 33 cases with immunohistochemistry and prognostic factors. *Breast Cancer Res Treat* 1989;13(1):39–48.
3. Voutsadakis IA, Zaman K, Leyvraz S. Breast sarcomas: Current and future perspectives. *Breast* 2011;20(3):199–204.
4. McGowan TS, Cummings BJ, O’Sullivan B, Catton CN, Miller N, Panzarella T. An analysis of 78 breast sarcoma patients without distant metastases at presentation. *Int J Radiat Oncol Biol Phys* 2000;46(2):383–90.
5. Grenier J, Delbaldo C, Zelek L, Piedbois P. Phyllodes tumors and breast sarcomas: A review. [Article in French]. *Bull Cancer* 2010;97(10):1197–207.
6. Al-Benna S, Poggemann K, Steinau HU, Steintraesser L. Diagnosis and management of primary breast sarcoma. *Breast Cancer Res Treat* 2010;122(3):619–26.
7. El Amine Elhadj O, Nasri M, Thabet S, Ben Hassouna J, Goucha A, Rahal K, et al. Primary breast sarcomas: About 30 cases treated at Salah-Azaiez institute in Tunisia. [Article in French]. *Cancer Radiother* 2017;21(1):45–50.
8. Trent II JC 2nd, Benjamin RS, Valero V. Primary soft tissue sarcoma of the breast. *Curr Treat Options Oncol* 2001;2(2):169–76.

9. Lahat G, Lev D, Gerstenhaber F, Madewell J, Le-Petros H, Pollock RE. Sarcomas of the breast. *Expert Rev Anticancer Ther* 2012;12(8):1045–51.
10. Fields RC, Aft RL, Gillanders WE, Eberlein TJ, Margenthaler JA. Treatment and outcomes of patients with primary breast sarcoma. *Am J Surg* 2008;196(4):559–61.
11. Salvadori B, Cusumano F, Del Bo R, Delledonne V, Grassi M, Rovini D, et al. Surgical treatment of phyllodes tumors of the breast. *Cancer* 1989;63(12):2532–6.
12. Barth RJ Jr. Histologic features predict local recurrence after breast conserving therapy of phyllodes tumors. *Breast Cancer Res Treat* 1999;57(3):291–5.
13. Wang F, Jia Y, Tong Z. Comparison of the clinical and prognostic features of primary breast sarcomas and malignant phyllodes tumor. *Jpn J Clin Oncol* 2015;45(2):146–52.
14. Zelek L, Llombart-Cussac A, Terrier P, Pivot X, Guinebretiere JM, Le Pechoux C, et al. Prognostic factors in primary breast sarcomas: A series of patients with long-term follow-up. *J Clin Oncol* 2003;21(13):2583–8.
15. Le Cesne A, Antoine E, Spielmann M, Le Chevalier T, Brain E, Toussaint C, et al. High-dose ifosfamide: Circumvention of resistance to standard-dose ifosfamide in advanced soft tissue sarcomas. *J Clin Oncol* 1995;13(7):1600–8.

Author Contributions

Lamine Gueye – Conception of the work, Design of the work, Acquisition of data, Analysis of data, Interpretation of data, Drafting the work, Revising the work critically for important intellectual content, Final approval of the version to be published, Agree to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved

Thiam O – Conception of the work, Design of the work, Drafting the work, Revising the work critically for important intellectual content, Final approval of the version to be published, Agree to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved

Gassama O – Conception of the work, Design of the work, Drafting the work, Revising the work critically for important intellectual content, Final approval of the version to be published, Agree to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved

Bentefouet TL – Conception of the work, Design of the work, Drafting the work, Revising the work critically for important intellectual content, Final approval of the version to be published, Agree to be accountable for all aspects of the work in ensuring that questions related

to the accuracy or integrity of any part of the work are appropriately investigated and resolved

Sarr AA – Conception of the work, Design of the work, Drafting the work, Revising the work critically for important intellectual content, Final approval of the version to be published, Agree to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved

Alissoutin AP – Conception of the work, Design of the work, Drafting the work, Revising the work critically for important intellectual content, Final approval of the version to be published, Agree to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved

Ba PA – Conception of the work, Design of the work, Drafting the work, Revising the work critically for important intellectual content, Final approval of the version to be published, Agree to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved

Thiam M – Conception of the work, Design of the work, Interpretation of data, Drafting the work, Revising the work critically for important intellectual content, Final approval of the version to be published, Agree to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved

Cisse ML – Conception of the work, Design of the work, Interpretation of data, Drafting the work, Revising the

work critically for important intellectual content, Final approval of the version to be published, Agree to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved

Guarantor of Submission

The corresponding author is the guarantor of submission.

Source of Support

None.

Consent Statement

Written informed consent was obtained from the patient for publication of this article.

Conflict of Interest

Authors declare no conflict of interest.

Data Availability

All relevant data are within the paper and its Supporting Information files.

Copyright

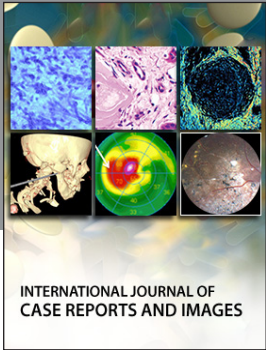
© 2025 Lamine Gueye et al. This article is distributed under the terms of Creative Commons Attribution License which permits unrestricted use, distribution and reproduction in any medium provided the original author(s) and original publisher are properly credited. Please see the copyright policy on the journal website for more information.

Access full text article on other devices



Access PDF of article on other devices





INTERNATIONAL JOURNAL OF CASE REPORTS AND IMAGES



VIDEO JOURNAL OF CLINICAL RESEARCH



VIDEO JOURNAL OF BIOMEDICAL SCIENCE



INTERNATIONAL JOURNAL OF HEPATOBILIARY AND PANCREATIC DISEASES



INTERNATIONAL JOURNAL OF BLOOD TRANSFUSION AND IMMUNOHEMATOLOGY



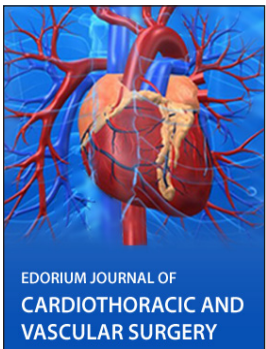
EDORIUM JOURNAL OF OPHTHALMOLOGY



Submit your manuscripts at
www.edoriumjournals.com



EDORIUM JOURNAL OF MEDICINE



EDORIUM JOURNAL OF CARDIOTHORACIC AND VASCULAR SURGERY



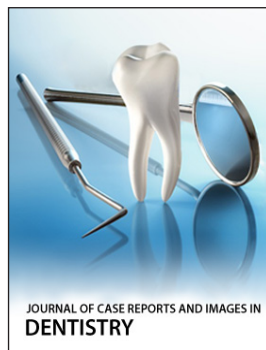
JOURNAL OF CASE REPORTS AND IMAGES IN ORTHOPEDICS AND RHEUMATOLOGY



EDORIUM JOURNAL OF PSYCHOLOGY



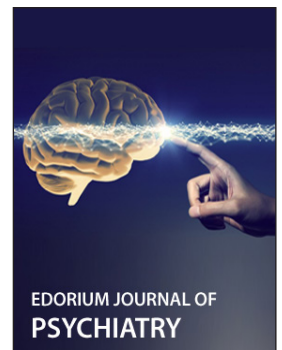
EDORIUM JOURNAL OF CELL BIOLOGY



JOURNAL OF CASE REPORTS AND IMAGES IN DENTISTRY



EDORIUM JOURNAL OF CANCER



EDORIUM JOURNAL OF PSYCHIATRY



JOURNAL OF CASE REPORTS AND IMAGES IN INFECTIOUS DISEASES



EDORIUM JOURNAL OF ANATOMY AND EMBRYOLOGY



EDORIUM JOURNAL OF SURGERY



JOURNAL OF CASE REPORTS AND IMAGES IN PATHOLOGY



EDORIUM JOURNAL OF ANESTHESIA