Abstract

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A001. Primary Ewing Sarcoma of Thyroid Gland: A Rare Entity

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Background: Ewing sarcoma is an aggressive primary neoplasm of the bone, constituting 6 to 8% of all malignant bone tumors. It predominantly affects the adolescents and young adults, and the most common anatomical site being the diaphysis or the metaphysis of the long bones. James Ewing first described it in 1921, and it was classified into "classic" Ewing sarcoma of bone, primitive neuroendocrinal tumor (PNET), and atypical Ewing sarcoma. With the identification of recurrent chromosomal translocation, the most common being the t(11;22)(q24;q12) resulting in the formation of the EWSR1-FLI1 fusion gene; these tumors are now classified as Ewing family of tumors.

Extraskeletal Ewing sarcoma is a rare entity, and its presence in the thyroid is even rarer. Its nonspecific clinical presentation makes it difficult to diagnose preoperatively. We present such a case of Ewing sarcoma arising from the thyroid gland.

Materials and Methods: The following is a case report of a 17-year-old male, who presented with a right-sided neck swelling to the Department of Surgery at Deenanath Mangeshkar Hospital and Research Centre, Pune. Routine investigations like total blood count, ultrasonography, fine-needle aspiration cytology (FNAC) from the neck swelling, laryngoscopy, and positron emission tomography-computed tomography (PET-CT) scan were done. Finally, the decision of total thyroidectomy was taken and was sent for histopathological reporting.

Results: The ultrasonography of the neck swelling revealed the presence of a nonfunctioning solitary thyroid nodule involving the upper pole of the right lobe of thyroid. FNAC was in favor of lymphoproliferative disorder. A large metabolically active lesion involving the entire right lobe of thyroid and measuring approximately 35x29x55 mm was noted on the PET-CT scan, suggesting the possibility of primary malignancy. No extra thyroid extension was seen. No active disease was noted elsewhere in the body.

Laryngoscopy findings were normal. The patient underwent total thyroidectomy with preservation of the parathyroid gland.

The histopathology of the excised tumor was consistent with that of a malignant round cell tumor. The tumor cells were arranged in nests, cords, lobules, and trabeculae separated by fibrous and focally hyalinized stroma. The tumor cells were small sized, with high nucleocytoplasmic ratio, scant cytoplasm, and mildly pleomorphic nuclei with stippled chromatin. No lymphovascular emboli or extrathyroid extension were noted. All regional lymph nodes were free of any metastatic deposits.

The sections were submitted to a panel of immunohistochemical studies. The tumor cells showed diffuse membrane positivity for MiC-2 (CD99), focal cytoplasmic positivity for cytokeratin, diffuse nuclear staining for NKX 2.2, and focal weak positivity for FLI-1. The tumor cells were negative for LCA, synaptophysin, EMA, WT-1, and S-100 protein. On the basis of these findings, the final diagnosis of Ewing sarcoma/PNET of the thyroid gland was established.

Conclusion: Ewing sarcoma is composed of small round cells with an increased nuclear-cytoplasmic ratio that represents a family of small round blue cell tumors of childhood (e.g., retinoblastoma, neuroblastoma, rhabdomyosarcoma, and nephroblastoma). These sarcomas originate from unique mesenchymal progenitor cells due to their similar histology and immunohistochemistry. Despite the fact that Ewing sarcoma of the head and neck region is rare, it must be considered as an important differential diagnosis, along with lymphoblastic lymphoma—its common histologic differential. Immunohistochemical stains play an important role in the diagnosis, the most useful and sensitive markers being CD99 and NKX2.2.

Even though Ewing sarcoma has a poor prognosis, it is concluded that it can be successfully treated with surgical resection and adjuvant chemotherapy

A002. A Rare Case of Synchronous Anal Canal Cervical Cancer: HPV the Causal Culprit?

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Background: In India, cervical cancer is the second most common malignancy in females. India shares 25% of the total global burden of carcinoma of cervix. Human papillomavirus (HPV) is presumed to be the most important cause of carcinoma of cervix. Incidence of carcinoma of anal canal is another consequence of HPV is quite rare in India. In this case, we first needed to prove that both are separate primaries, as treatment and stage would change if it was a single entity.

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	Anal canal cancer	Cervical Cancer
Stage	$cT_3 N_1 M_0$	FIGO IIB
Radiation field	Primary lesion Whole pelvis inguinal node	Primary lesion Whole pelvisCommon iliac nodes
Concurrent CT (prescribed)	5FU+ MMC	CDDP
Concurrent CT (given)	CDDP	CDDP
Technique	IMRT	IMRT
Dose (prescribed)	45Gy/25#	45–50.4 Gy/25–28#
Boost (prescribed)	15Gy/6#	ICA HDR 21Gy/3#
Dose (delivered)	45 Gy/25#	
Boost (delivered)	18 Gy/10#	

Abbreviations: CT, computed tomography; CDDP, cisplatin; HDR, high dose rate; ICA, intracavitary application; IMRT, intensity modulated radiation therapy; MMC, Mitomycin C.
Note: # signifies fractions.

Second radiation treatment planning differed from usual, as adequate dose has to be delivered to both lesions at the same time keeping dosage to normal structures within limit. Also combining all concurrent chemo regimen would have led to increased toxicity.

Materials and Methods: A 64-year-old female presented with a history of per vaginal bleeding for 3 months and intermittent per rectal bleeding for 2 months. On vaginal examination, growth arising from cervical os involving the upper two-third of vagina was seen. Parametrial was involved. Per rectal examination showed circumferential growth at 2 cm from anal verge. Both tumors were biopsied and showed p16 positivity. Using clinical and radiological cues, they were established as separate entities. They were staged as cT3N1 M0 for anal canal and FIGO II B for cervix. Treatment planning was challenging, as combined treatment of both primaries would have been quite toxic. Both primaries were irradiated, using a single radiosensitizer chemotherapeutic agent: Cisplatin, with 45 Gy/25# and boost 18Gy/10#. Patient tolerated treatment well and with 12 months of follow-up showed good oncological control.

Result: Three challenges in this case were found:

1. Establish whether there are separate primaries on single entity? This was done using Warren & Gates Criteria.
2. Is it HPV related? HPV DNA polymerase chain reaction was a costly investigation and result has no implication on prognosis or treatment this plb was used as surrogate marker of HPV infection.
3. What agent to use for concurrent radiation, how to boost each primary?

Conclusion: In patients harboring HPV-related malignancies, other sites that can have HPV-related diseases should be examined. Synchronous primaries should be differentiated from locally advanced or metastatic diseases. And while treating synchronous diseases both primaries should receive optimal treatment with minimal possible toxicity.

A003. A Dosimetric Study Comparing Lung and Cardiac Doses with and without Deep Inspiratory Breath Hold Technique (DIBH) in Patients Undergoing Adjuvant Radiotherapy for Left-Sided Breast Cancer

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Background: Patients undergoing radiotherapy for left-sided breast cancer are at risk of long-term cardiac morbidity like coronary artery disease and myocardial infarction. Apart from cardiac injury, radiotherapy to breast also causes injury to lung that leads to pneumonitis. The deep inspiratory breath hold (DIBH) reduces cardiac dose and also helps in reducing lung dose. The aim of our study is to compare dosimetric parameters of heart and lung with and without active breath coordinator (ABC) DIBH during tangential field breast cancer radiation.

Methods and Materials: This is a dosimetric comparative study wherein 60 patients who underwent breast conservation surgery followed by tangential field breast radiotherapy using ABC DIBH between September 2019 and June 2022 at our center were analyzed. Patients who could hold their breath for a minimum duration of 20 seconds were considered for ABC DIBH technique. Simulation scans

Parameters	FB scan	DIBH scan	p-Value
Heart D-mean	4.15Gy	2.10 Gy	0.001
Heart V30	19%	4%	0.001
LAD	3.77 Gy	2.87 Gy	0.019
Mean total lung volume	2,411 cc	3,636 cc	0.001
Ipsilateral lung volume	1,024 cc	1,624 cc	0.001

Abbreviations: DIBH, deep inspiratory breath hold; FB, free breathing; LAD, left anterior descending artery; D-mean, mean dose; V30 volume receiving dose of 30 Gy.

for both free breathing (FB) and ABC DIBH were done. Prescribed dose was 40 Gy in 15 fractions at 2.67 Gy per fraction. Plans were generated using Monaco planning system for both FB and DIBH. Target coverage, various heart, and lung dose parameters were documented with dose volume histograms for both FB and DIBH.

Results: All 60 patients' data with 120 computed tomographic (CT) scans were analyzed. Mann–Whitney U statistical test was used and level of significance was set at less than 0.05. The mean threshold for breath holding was 1.30 L. The mean breath hold duration was 20 seconds. CT scans using DIBH showed a significant larger total lung volume. The mean increase in the threshold limit value was 65.98%. Upon comparison of dose parameters, the mean heart dose was 2.10 Gy using DIBH and it was 4.15 Gy with FB ($p < 0.007$). There was reduction in mean dose by 2.15 Gy. Left anterior descending artery (LAD) showed a reduction in mean dose by 9 Gy. Mean LAD dose in DIBH was 2.87 Gy and in FB was 3.77 Gy ($p < 0.005$). Ipsilateral lung V5 and V20 that are most common predictors for pneumonitis were also assessed. There was no statistically significant difference in lung dose parameters, but the mean V30 was reduced by 5.4% in DIBH arm compared to FB arm.

Conclusion: We conclude that the use of ABC DIBH technique resulted in a significant reduction in cardiac dose (mean heart dose and LAD), increased the total lung volume, but the V20 and V5 of ipsilateral lung did not show any significant difference. Hence, ABC DIBH technique should be considered for eligible patients of left-sided breast irradiation to reduce long-term cardiac toxicity.

A004. Integration of Multidisciplinary Approach in Oral Squamous Cell Carcinoma Research and Therapeutics

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Introduction: Head and neck squamous cell carcinoma (SCC) is the sixth most common cancer in which the lip or within the oral cavity carcinoma is most common. While the detection and treatment of most cancers have improved over the last few decades, the prognosis for oral squamous cell carcinoma (OSCC) does not lead to more deaths attributed to OSCC per annum.

Methods: One herbal medicine was chosen and different software and public databases were used to predict different targets/genes and signaling pathways that can be targeted for research and future therapeutic purposes. Primary OSCC tissue was cultured, and primary cells were isolated and cultured. These cells will also be morphologically examined for future research.

Results: Several bioinformatics tools and databases were used to identify important compounds and active genes/targets. It was possible to identify the most important signaling pathways by using specific types of mechanisms. Tissue culture was used to successfully isolate and culture Ca-stromal cells, a key component of the tumor microenvironment (TME).

Conclusion: To improve the treatment modality, the prognosis, and the patient's quality of life, planning should begin with the patient's cancer biology, pathology, treatment, and follow-up. In such a case, incorporating a multidisciplinary approach is critical. In silico methods could be used to predict the genes and pathways that will be used to understand cancer behavior. Cancer tissue and Ca-stromal cells (TME) from the patient can be used to screen the medications currently prescribed for the patient, providing an accurate assessment of the course of treatment.

A005. A Single Institution's Experience with Stereotactic Body Radiation Therapy to Treat Low- and Intermediate-Risk Prostate Cancer, and Its Outcomes

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Background: Extreme hypofractionation with stereotactic ablative radiotherapy (SABR), exploits the low alpha/beta ratio of prostate and has shown encouraging results and safety in low and intermediate risk groups This form of radiotherapy delivers a very high dose of radiation in a very short period of time, theoretically giving the same results in a shorter duration and reduced early side effects.

Materials and Methods: Ten low- and intermediate favorable risk cases based on National Comprehensive Cancer Network risk stratification were chosen for SABR. Patients underwent immobilization using a long Vac-lok and a planning computed tomography with strict bladder and rectal protocol was done. Image registration and fusion with the recent positron emission tomography-computed tomography scan/magnetic resonance imaging were done. Conformal planning was done on the Eclipse Planning System using RapidArc (VMAT) technique. The bladder and rectum constraints were set using the PACE-B phase III trial. The treatment was done with daily image guidance and six-dimensional couch correction. The dose was 36.25 Gy/5# on alternate days for 5 days over 2 weeks. The patients were then assessed for bladder and rectal side effects that are the main organs at risk, and a follow-up prostate-specific antigen was done at 3-month intervals up to 1 year.

Results: Nine out of the 10 patients tolerated the treatment well. One out of 10 patients developed acute RTOG grade III bladder side effects that were resolved with medical management. Zero out of the 10 patients have had a biochemical recurrence/relapse. Zero out of 10 patients have had late side effects. All patients have had progression-free survival for 12 months. The overall treatment compliance was good.

Conclusions: SABR for prostate cancer is a viable alternative to conventional and moderately hypofractionated regimens used to treat prostate cancer. Equivalent results are achieved with minimal early and late side effects. The reduction in the overall treatment time has also benefited the patient and increased compliance.

A006. Genetic Testing: A Game Changer in Cancer Risk Reduction

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Introduction: Ten to fifteen percent of cancer cases are due to hereditary cancer syndromes. Scientific advances in genomics have revolutionized our approach to counseling, testing, targeted therapy, cancer screening, and prevention. Along with an easier access to genetic testing and growing

physician and patient awareness, detection of such cases is bound to increase in the times to come. But what next after genetic testing its clinical impact and compliance of patients to cancer risk reduction practices after genetic testing is not much known.

Methods: Between February 2018 and July 2022, 270 patients belonging to 244 families were registered in a cancer genetic clinic at a tertiary cancer center in Pune. Pre-test counselling along with consent was done prior to genetic testing in all cases. Mutation carriers were offered risk reduction based on standard guidelines, age, and personal preferences. Data was collected in a prospective manner and results were analyzed using simple descriptive statistics.

Results: One hundred twenty-three of two-hundred seventy (45.55%) patients underwent genetic testing by next gene sequencing (NGS), of which 55 (44.71%) tested positive for pathogenic germline mutations and 24 (19.5%) patients were found to have a variant of unknown significance (VUS). Of the patients who underwent genetic testing, 63 (51.2%) patients were suspected to have hereditary breast and ovarian cancer syndrome (HBOCS) and 30 of them had a positive mutation. The most common mutation found was in BRCA 1 (36%). There were 20 women with BRCA 1 positive breast cancer, with a median age of 40 years. Only 5 of 30 patients with proven HBOCS did not have a significant family history and 10 of these were non BRCA 1 mutations (BRCA 2, TP53, ATM, PALB2, RAD54L). The most common exon involved in BRCA 1 was 10 followed by exon14. The most common mutation type was deletion. The most common mutation location was c.68_69AG, found in five patients, in which four out of five patients were found belonging to Konkonastha brahmin community.

Four patients underwent risk reducing salpingo-oophorectomy (RRSO), and two underwent RRSO along with prophylactic mastectomy, while 26 patients opted for surveillance. None were found to have occult malignancy in RRSO. One patient underwent prophylactic medullary thyroidectomy and was positive for medullary thyroid carcinoma (MTC). Among the cohort of 55 positive carriers, there were two large duplications reported that were picked up on NGS. Overall, of the 55patients found to have hereditary cancer syndromes, at least one intervention for cancer risk reduction was done in 47 (85.45%) of the cases- screening being the most common. Thirteen mutation specific tests were done in family members, of which eight new carriers were found and seven patients were healthy and early cancer detected via prophylactic surgery in one case.

Conclusion: BRCA 1 is the most common gene implicated in HBOCS and the most common gene found mutated in the cancer genetic clinic (CGC) in general. When a patient is suspected to have a HBOCS but does not have a significant family history, multigene or panel testing may be worthwhile as BRCA 2, TP53, ATM, PALB2, RAD54L mutation was found in 10 patients. Among families with strong clinical suspicion but negative NGS testing considering multiplex ligation dependent probe amplification (MLPA) for suspected gene maybe worthwhile. Identifying carriers of pathogenic mutations and thereby using various preventive interventions such as surveillance and prophylactic surgeries can lead to cancer prevention and early detection of cancer. A hereditary cancer genetic program can have a significant impact not only on patient treatment and risk reduction management but also on their families. Genetic counselling is paramount due to the social and psychological impact. With a committed multidisciplinary oncology team, it is possible to run an impact full hereditary cancer genetic clinic.

A007. Primary Lymphovenous Anastomosis in Breast Cancer Axillary Dissection

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Introduction: Lymphedema can arise after any cancer treatment where there is tissue dissection and radiation. Breast cancer-related lymphedema occurs in about 30% of breast cancer survivors, thus leading to low quality of life. It can be treated prophylactically by lymphaticovenous anastomosis (LVA) where in artificial connections between the venous and lymphatic system are performed supermicrosurgically to minimize the lymphatic dysfunction seen following lymphadenectomy.

Here, we present a case report of lymphaticovenous anastomosis done along with left breast conservation surgery with axillary lymph node dissection with supraclavicular lymph nodes clearance.

Case Report A: 62-year-old postmenopausal lady came with complaint of left breast lump for a few months. Her mother was diagnosed with carcinoma lung at the age of 35 years. On examination, she had a hard lump in her left breast upper outer quadrant (UOQ) which was approximately 1.5x1.5cm in size, nonmobile, nontender, and without any skin changes. No axillary nodes were palpable in left axilla. Mammography was suggestive of left breast lesion with axillary lymphadenopathy. Core biopsy was performed and was suggestive of invasive mammary cancer with estrogen receptor (ER)/progesterone receptor (PR)-negative and Her 2-positive status on fluorescence in site hybridization (FISH). Positron emission tomography-computed tomography showed a left breast lesion of size 16x12x14mm, with multiple left supraclavicular nodes, left axillary, and subpectoral nodes. Ultrasound-guided clips were placed before starting neoadjuvant chemotherapy (NACT). Patient took three cycles of Epirubicin – Cyclophosphamide (EC) and nine cycles of paclitaxel + trastuzumab. On clinical

Table 1 Arm girth measurements pre- and post-procedure

Girth measurements (cm)	Preoperative		3 months postoperatively	
	Left	Right	Left	Right
Mid-arm	26.2	25.2	26.5	25.3
At elbow	24.0	23.5	24.3	23.7
Mid-forearm	21.1	20.8	21.5	21
Wrist	15.1	14.9	15.5	15

examination and imaging, it was suggestive of good response. Patient was worried about postoperative complications and considering her left-hand dominance, she was given an option of primary LVA. After completion of NACT, she underwent left breast conservation therapy with axillary lymph node dissection with supraclavicular lymph nodes clearance with lymphovenous anastomosis. Postoperative period was uneventful. Patient recovered well. She was advised arm and shoulder physiotherapy post-surgery. Final histopathology report was suggestive of complete pathological response. She completed her radiation therapy. Patient is currently on follow-up. Her 3 months follow-up arm girth shows no significant change from her pre-procedure girth (**Table 1**).

Conclusion: Primary LVA is upcoming and effective treatment in prevention of lymphedema. However, more studies are needed to be done to validate its use.

A008. A Case Series of Perforator-Based Flaps for Breast Reconstruction after Breast Conservation Surgery

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Introduction: Breast conservation surgery (BCS) with whole-breast irradiation is equivalent to mastectomy in terms of survival. However, cosmetic results are not predictable and depend on tumor size and breast volume. Oncoplasty using perforator-based flap is a newer technique that offers a great opportunity for partial breast reconstruction after BCS in patients with small-to-medium-sized breasts.

We started using these flaps for small-to-medium-sized breast reconstruction post-BCS in 2021.There is not much literature on these flaps beings used in Indian population; hence, the need to understand the outcome of these reconstructions is even more needed. In our study, we report our experience with perforator flap reconstruction after BCS with regard to complications, cosmesis, and patient satisfaction.

Methods: All women who underwent BCS/wide local excision (WLE) with perforator flap reconstruction at Ruby Hall Clinic, Pune, India from June 2021 to May 2022 were included in this study. Their demographic data, clinical findings, imaging findings, histopathological findings, operative details, and follow-up were maintained.

All patients underwent reconstruction immediately after BCS in the same sitting. The perforators were marker under ultrasonography guidance preoperatively for all patients. After excision of tumor, based on the tumor location and defect size, appropriate flap was isolated on the respective perforator and rotated to fill the defect.

Cosmetic outcome and satisfaction were assessed through a questionnaire prepared on Breast-Q scales. These were filled by patients 1-month post-surgery.

Results: A total of 12 patients underwent BCS/WLE+perforator flap reconstruction surgery from June 2021 to June 2022 at our center. Out of these, three were lateral intercostal artery perforator (LICAP) (25%), three were medial intercostal artery perforator (MICAP) (25%), two were anterior intercostal artery perforator (AICAP) (16.66%), two were thoracodorsal artery perforator (TDAP) (16.66%), and one each of lateral thoracic artery perforator (LTAP) (8.33%) and superior gluteal artery perforator (SGAP) (8.33%). The median tumor size was 3.75 cm. The mean operative time was 161.4 minutes and mean hospital stay was 2.3 days.

Only one patient had flap necrosis of the tip as complication that was managed by debridement.

Table 1 Cosmetic satisfaction score

	Very dissatisfied	Somewhat dissatisfied	Somewhat satisfied	Very satisfied
How you look in the mirror clothed?				12
How comfortably your bras fit?				12
Being able to wear clothing that is more fitted?				12
How you look in the mirror unclothed?		1	11	
The shape of your reconstructed breast(s) when you are wearing a bra?			12	
The size of your reconstructed breast(s)?			1	11
How equal in size your breasts are to each other?			1	11
How natural your reconstructed breast(s) looks?		1	11	
How much your reconstructed breast(s) feels like a natural part of your body?				12
How closely matched (similar) your breasts are to each other?		1	1	10

Median follow-up was 4.5 months. Ninety-six percent of the patients were satisfied with the cosmetic outcomes (**Table 1**).

Conclusion: Perforator flap is an excellent technique for filling defects post-BCS in small-to-medium-sized breasts. Such patients can avoid mastectomy and have good cosmetic results. However, this technique requires to be evaluated in more details

A009. Neoadjuvant Systemic therapy (NAST) for Breast Cancer—A Single Tertiary Care Center Experience

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Background: In India, breast cancer frequently presents late, and many individuals are not eligible for breast conservation when they are diagnosed. Neoadjuvant systemic therapy (NAST) was earlier used to render inoperable breast cancer operable and later to facilitate breast conservation. The scope of NAST has recently been expanded to include risk-adapted therapy for residual disease. NAST is a safe and effective treatment option for women who present with tumors larger than 2 cm, small tumor to breast ratios, and node-positive illness. Hence, this study captures the experience of NAST for breast cancer in the tertiary care setting.

Materials and Methods: It is a retrospective study that examines a prospective database of patients who had treatment from December 2019 to April 2022 in our center. Data extracted from the database were imaging, clinical findings, biopsy results at the time of diagnosis, type of surgery, post-surgical treatment details (including radiotherapy and targeted therapy), last follow-up, NAST details with grade 3 and 4 toxicities, and pathological complete response (pCR) reported as per Miller-Payne classification which were later expanded to include residual cancer burden (RCB) as well.

Results: In total, 67 women with median age of 49 years (range: 28–71 years) were included in the study. Clinical node positive was found among 50 patients. Through sonography and/or positron emission tomography (PET) scan, 61 patients were detected positive nodes and staging PET scan was done in 57 as explained in **Table 1**.

Dose-dense chemotherapy (anthracyclines and taxanes) with prophylactic growth factor support was received by 45 women and remaining received conventional 3 weekly regimen. Additionally, 7 triple-negative breast cancer (TNBC) subtype patients received platinum and 27 HER2neu-positive patients received HER2 therapy. Among these, one patient received dual anti-HER2 treatment. All the patients completed full course of chemotherapy before surgery and were assessed for pathological response to NAST. The median duration of chemotherapy was 5 months. On histopathological examination, 29 (43.2%) women achieved a pCR (Miller-Payne 5/5 or RCB 0). The pCR rate for the TNBC, HER2 positive, and estrogen receptor (ER)-positive group was 61.9, 44.4, and 15.7%, respectively. Among the node-positive patients, 42.6% patients had pCR.

Women who had breast conservation surgery and modified radical mastectomy (MRM) were 43 (64%) and 22 (36%), respectively, with one patient refused for surgery and another died during NAST due to coronavirus disease 2019 (COVID-19) infection complication. All patients with T4 disease had MRM. Adjuvant radiotherapy and capecitabine (for residual disease) were received by 53 and 8 TNBC patients, respectively. Trastuzumab was received by 20 HER2-positive patients for maintenance with 10 patients each received 6 and 12 months duration of treatment, whereas 5 patients did not take due to financial constraints. Trastuzumab Emtansine (TDM1) was re-received by two patients with HER2-positive subtype for residual disease.

Grade 3, 4 neutropenia was developed in 11 patients, during NAST despite growth factor support and of these, 8 patients had received dose-dense chemotherapy regimens.

Follow-up data was available for 65 patients who were alive and disease free, with median follow-up period to be 5 months (range: 3–18 months). Death occurred among two patients, one died due to relapse 4 months following treatment and another due to COVID-19 complications after the second cycle of neoadjuvant chemotherapy.

Conclusion: From this initial experience, it is reasonable to conclude that NAST for operable breast cancer is a safe and effective strategy. This approach requires a multidisciplinary approach and close coordination between all diagnosing and treating specialists.

Table 1 Stages and subtypes of breast cancer

Stages of breast cancer ($n = 67$)	*n* (%)
T1	4 (5.97)
T2	34 (50.74)
T3	15 (22.38)
T4	14 (20.89)
Subtypes of breast cancer ($n = 57$)	*n* (%)
Luminal A (ER and/or PR positive and HER2neu negative)	19 (33.33)
Luminal B (ER positive and HER2neu positive)	13 (22.80)
TNBC	21 (36.84)
HER2neu positive	14 (24.56)

Abbreviations: ER, estrogen receptor; PR, progesterone receptor; TNBC, triple-negative breast cancer.

