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Olaparib in Breast Cancer

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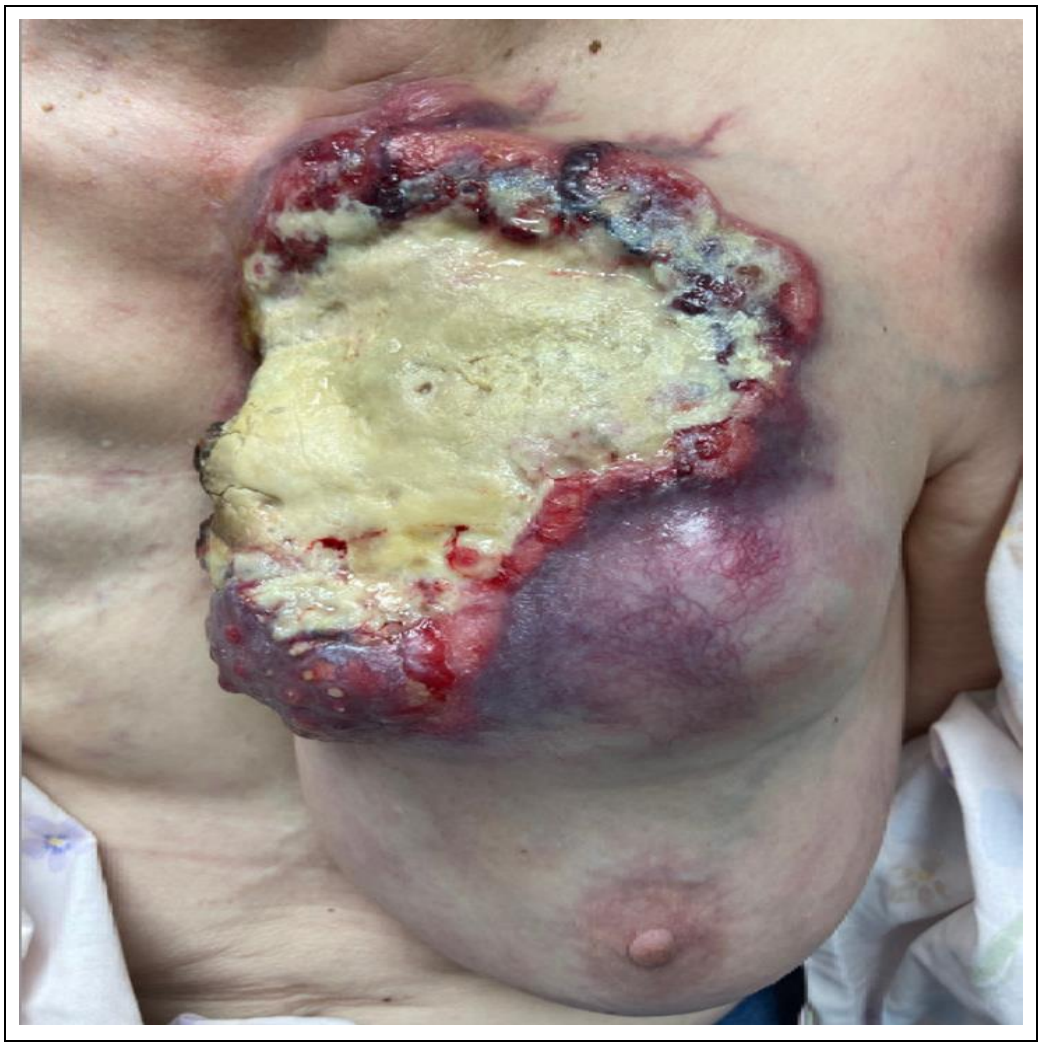

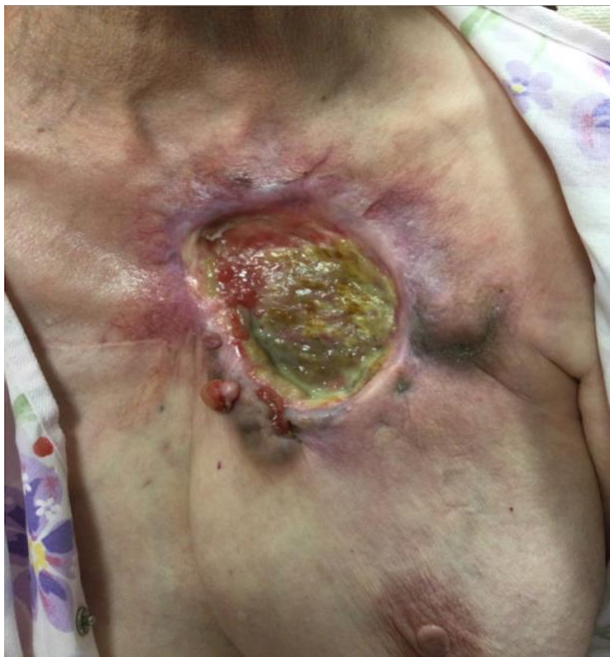

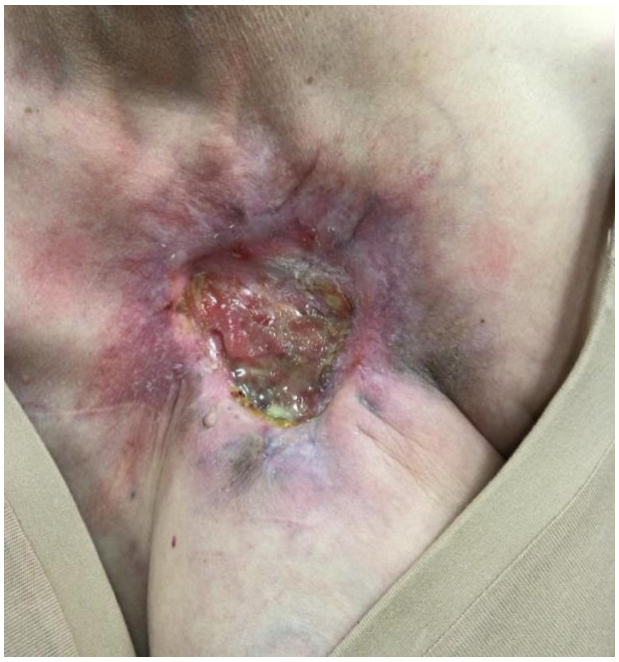

Clinical Image

A 71-year-old female presents with a 6-month history of an enlarging left breast mass. She has a history of right breast and ovarian cancers treated at the ages of 38 and 59, respectively, and a germline mutation in breast cancer susceptibility gene 1 (BRCA1). On examination, a large fungating left breast mass was seen (Panel A). Biopsy showed poorly differentiated triple negative adenocarcinoma of the left breast, programmed cell death ligand 1 (PDL1) negative (combined positive score <1). Systemic staging showed local invasion into the left side of the sternum, left second rib with axillary lymphadenopathy and multiple bilateral pulmonary metastasis. Treatment was initiated with single agent nab-paclitaxel, and pembrolizumab was subsequently added when a high Tumor Mutation Burden was discovered on genomic testing of the tumor. She achieved partial response. Upon clinical progression of the fungating mass, she was started on the poly (ADP-ribose) polymerase (PARP) inhibitor olaparib with a robust response within 3 weeks. There was a remarkable improvement in the size of the breast tumor by 8 weeks (Panel B) and 20 weeks (Panel C). Repeat imaging showed regression in the pulmonary metastatic lesions with a stable sternal lytic lesion. In breast cancer patients with a germline BRCA mutation, PARP inhibitors can result in an extraordinary response and should be considered even in patients needing a quick response due to symptomatic or heavy disease burden. Eight months after starting olaparib, our patient continues to have stable disease.