

Multidisciplinary Diagnosis and Treatment of Giant Mass with Ulceration and Hemorrhage in Elderly Breast Cancer: A Case Report

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How to cite this paper: Zeng, K.J., Zhou, Y.Y., Li, S.W., Xiao, Y. and Li, N. (2026) Multidisciplinary Diagnosis and Treatment of Giant Mass with Ulceration and Hemorrhage in Elderly Breast Cancer: A Case Report. *Journal of Biosciences and Medicines*, **14**, 312-325.

<https://doi.org/10.4236/jbm.2026.142023>

Received: January 7, 2026

Accepted: February 8, 2026

Published: February 11, 2026

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Abstract

Background: Conventional breast cancer can achieve favorable treatment outcomes with existing guidelines and protocols. However, for patients with large masses complicated by ulceration and hemorrhage, particularly elderly patients, the therapeutic approach remains challenging. It is essential to explore tailored diagnostic and therapeutic strategies for this population, which necessitates multidisciplinary collaboration for comprehensive management to ultimately improve patient survival. **Case Report:** A 70-year-old female patient presented with a left breast mass measuring over 10 cm in ulcerated area. Following multidisciplinary discussion at our hospital, she underwent a series of interventions including minimally invasive interventional therapy, targeted therapy combined with chemotherapy, surgical resection, and targeted maintenance therapy. The patient has achieved 2+ years of disease-free survival.

Keywords

Elderly, Breast Cancer, Giant Mass with Hemorrhage, Multidisciplinary Collaboration, Minimally Invasive Intervention

1. Introduction

Breast cancer is one of the most common gynecological malignancies. According to statistics, there are 2,308,897 new cases and 665,684 deaths globally each year [1] [2]. In recent years, with the implementation of breast cancer screening, only

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5% - 10% of new cases are diagnosed at advanced stages annually. With the increasing development of multidisciplinary diagnosis and treatment models and the growing prevalence of the concept of early screening, diagnosis, and treatment for prevention, the overall 5-year survival rate of breast cancer patients has improved [3]. This case involves a 70-year-old patient with advanced HER-2-positive breast cancer, complicated by skin ulceration, hemorrhage, hypertension, and other complications, who experienced disease progression after treatment at another hospital. Through multidisciplinary collaboration, an individualized comprehensive treatment plan was formulated for this case, achieving complete tumor remission. This provides a reference for the clinical diagnosis and treatment of giant breast tumors with ulceration and hemorrhage.

2. Case Report

2.1. General Information

Patient, female, 70 years old, farmer, married; no history of smoking or alcohol consumption, no history of infectious diseases; diagnosed with “essential hypertension, grade 2, high-risk group” in 2017, long-term oral administration of amlodipine besylate tablets 2.5 mg qd for blood pressure control, with target blood pressure achieved.

The patient has a family history of liver cancer in the father and cervical cancer in the mother. She was admitted to our hospital on September 26, 2022, due to a left breast mass that had ulcerated, bled, and caused pain for over 3 months, with symptoms worsening for 1 week. In 2019, the patient discovered a left breast lump (approximately 2.5 cm × 1.5 cm) without significant discomfort and did not seek timely medical attention. In 2020, the mass gradually increased in size (approximately 10 cm × 8 cm), with surrounding redness and swelling but no pain. In April 2022, the mass further enlarged, gradually ulcerated and bled, and the pain progressively worsened. Intermittent oral administration of “ibuprofen” provided only minimal pain relief.

Treatment course at Chongqing Cancer Hospital: On April 29, 2022, ultrasound-guided fine-needle aspiration biopsy (FNA) revealed invasive carcinoma in the left breast mass and metastatic adenocarcinoma in the left axillary lymph node. Combined with medical history and immunohistochemistry (IHC), the diagnosis was consistent with breast cancer metastasis. IHC results showed ER (–), PR (–), and Her-2 (3+). On May 19, 2022, the patient received one

cycle of the TH regimen (doxorubicin 100 mg + trastuzumab 440 mg). On June 14, 2022, another cycle of the THP regimen (trastuzumab 342 mg + pertuzumab 840 mg + doxorubicin 100 mg) was administered. Due to severe chemotherapy reactions, the patient underwent two cycles of the HP regimen (trastuzumab 342 mg + pertuzumab 840 mg) on July 8 and August 8, 2022, for dual-target therapy. The tumor continued to grow, and bleeding persisted.

Admission physical examination: ECOG score 1, height 160 cm, weight 57 kg, body surface area 1.61 m², vital signs normal. Anemic appearance, expression of

pain and anxiety. A large mass (approximately 12 cm × 6 cm) was observed in the left breast, with ulcerated and necrotic skin exuding fresh blood (approximately 8 cm × 5 cm), and perilesional skin showing peau d'orange changes (**Figure 1**). Left axillary lymph nodes were enlarged (approximately 5 cm × 4 cm), firm in consistency, and poorly mobile.

Pain, psychological distress, and nutritional assessment: The Numerical Rating Scale (NRS) for pain scored 6, manifesting as persistent distending pain in the left breast region, occasionally with stabbing pain and burning sensation, exacerbated by touch or compression. The Brief Pain Assessment Scale indicated that the pain affected sleep and eating. Psychological assessment revealed moderate psychological distress, primarily related to concerns about disease prognosis, changes in the appearance of skin ulcerations, and worries about burdening family members. The NRS2002 nutritional risk screening scored 2.



Figure 1. Admission to our hospital on September 26, 2022.

2.2. Auxiliary Examinations

Imaging findings: PET/CT at Chongqing Cancer Hospital on May 20, 2022 revealed multiple nodules and masses in the left breast with increased metabolism, consistent with neoplastic lesions; enlarged left axillary lymph nodes with increased metabolism, suggestive of metastasis. On September 26, 2022, enhanced CT of the chest and abdomen at our hospital demonstrated a new lesion in the left breast (11.9 cm × 6.2 cm) with metastasis to the left breast and left axillary lymph nodes (4.7 cm × 3.8 cm). No distant metastases were observed in the lungs, liver, bones, or other organs (**Figure 2**). Cranial MRI showed no brain metastases.

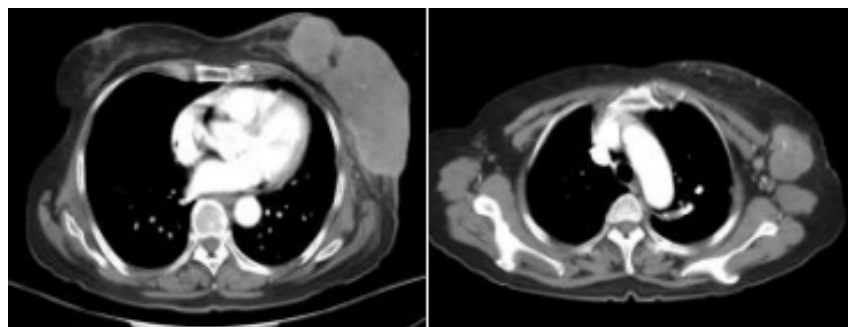


Figure 2. New lesion in the left breast (11.9 cm × 6.2 cm) with metastasis to the left breast and left axilla (4.7 cm × 3.8 cm) on September 26, 2022.

Laboratory tests: On September 26, 2022, the complete blood count (CBC) of our hospital showed hemoglobin (Hb) at 79 g/L; tumor markers (carcinoembryonic antigen, CA15-3, squamous cell antigen, etc.), liver and kidney function, and electrocardiogram (ECG) were all within normal ranges without significant abnormalities.

2.3. Diagnosis and Differential Diagnosis

Diagnosis: 1) Left breast invasive carcinoma cT4N2M0 stage IIIB (ER (-), PR (-), Her-2 (3+)); secondary malignant tumor in the left breast and left axillary lymph nodes; 2) Skin and soft tissue infection; 3) Chronic refractory pain (somatic pain, moderate pain); 4) Anemia (hemorrhagic, post-chemotherapy bone marrow suppression); 5) Sleep disorders; 6) Primary hypertension, grade 2, high-risk group.

Differential diagnosis: Based on the pathological conclusion of the punctured tissue, breast inflammatory diseases, breast fibrosarcoma, and malignant transformation of intraductal papilloma of the breast can be excluded.

2.4. Treatment

First MDT on September 27, 2022: 1) Rapid analgesia (morphine); 2) Symptom relief: sleep aid, anti-anxiety if necessary; 3) Dietary guidance, enteral nutrition; 4) Local therapy combined with systemic anti-tumor treatment: tumor arterial perfusion chemotherapy + embolization + anti-Her-2 targeted therapy + local radioactive iodine-125 (RIO-125) seed implantation; 5) Anti-infection; 6) No surgical indications; 7) Comprehensive, meticulous, and compassionate care throughout the entire process.

Standardized Management of Cancer Pain: Adhering to the principles outlined in the WHO and National Health Commission's "Diagnosis and Treatment Guidelines for Cancer Pain (2018 Edition)", the treatment involves oral administration, stepwise dosage adjustment, scheduled dosing, and individualized medication. On day 1, morphine 10 mg per dose is administered as needed, totaling 6 doses, with an NRS score of 2 - 3. On day 2, the regimen is adjusted to morphine sustained-release tablets 30 mg every 12 hours, with an NRS score of 1 - 3. On day 3, the maintenance dose of morphine sustained-release tablets 30 mg every 12 hours is continued, with an NRS score of 1 - 2. Simultaneously, eszopiclone is administered to improve sleep quality, with enhanced monitoring and nursing care for adverse reactions.

Local minimally invasive interventional therapy: 1) On September 30, 2022, DSA-guided left subclavian artery angiography was performed, followed by perfusion chemotherapy of the tumor-supplying artery (200 mg albumin-paclitaxel) and embolization (**Figure 3**). Five days postoperatively, significant reduction in tumor hemorrhage was observed (**Figure 4**), with gradual necrosis appearing on the tumor surface; 2) On October 7, 2022, CT-guided radioactive iodine-125 (I-125) seed implantation was performed for the left breast tumor and axillary metastatic lesions (**Figure 5**). The internal radiation therapy technique was employed

to eradicate tumor cells, reduce tumor size, and control pain. No further bleeding occurred within 15 days postoperatively, and the wound area further decreased (**Figure 6**).



Figure 3. September 30, 2022 DSA-guided: Left subclavian artery angiography + chemotherapy of the tumor-supplying artery + embolization.



Figure 4. October 5, 2022 (5 days after arterial perfusion chemotherapy + embolization).



Figure 5. October 7, 2022 (during radioactive iodine-125 (I-125) particle implantation).



Figure 6. October 22, 2022 (15 days post-particle implantation).

Anti-HER-2 targeted combined chemotherapy: From October 10, 2022 to February 1, 2023, the patient received 5 cycles of the THP regimen (trastuzumab 342 mg + pertuzumab 840 mg + albumin-bound paclitaxel 200 mg d1, d8, d15 q3w). In December 2022, the patient did not return to the hospital for the d8 and d15 cycles of albumin-bound paclitaxel chemotherapy due to COVID-19 infection. During this period, mild gastrointestinal reactions and grade II myelosuppression occurred. Treatment with recombinant human granulocyte colony-stimulating factor (rhG-CSF) effectively increased white blood cell counts and alleviated acid reflux, providing protective effects on the stomach. After comprehensive treatment, the tumor continued to regress: the efficacy assessment on December 6, 2022 was partial response (**Figure 7**, **Figure 8**); the efficacy assessment on February 23, 2023 was complete response (**Figure 9**).



Figure 7. December 6, 2022 (2 months post-particle implantation).

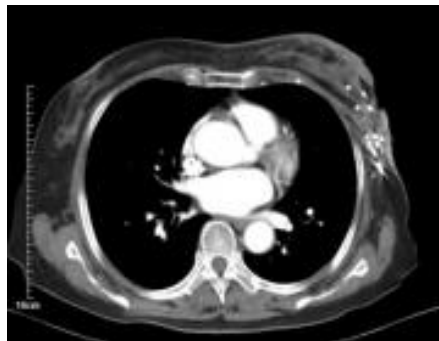


Figure 8. December 6, 2022 (CT scan 2 months post-particle implantation).

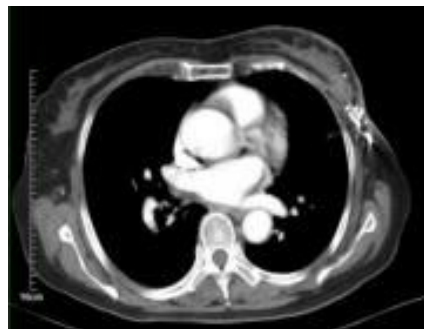


Figure 9. February 23, 2023 (CT scan 4+ months post-particle implantation).

Second MDT on March 8, 2023: 1) Improve breast MRI + diffusion imaging to assess tumor activity; 2) Detect iodine-125 (I-125) particle activity within the lesion to ensure radiation safety; 3) Post-evaluation, left mastectomy and ulcer repair are planned.

Surgical treatment: On March 14, 2023, the patient underwent left mastectomy + repair of chronic left chest ulcer to further debride the lesion and reduce the risk of local recurrence. The postoperative wound healed well. At 1-month follow-up, the skin remained intact without nodules or other abnormalities. Imaging evaluation confirmed a complete response (CR) (**Figure 10**, **Figure 11**). The patient has returned to normal life and is harmoniously reintegrated into society.



Figure 10. April 10, 2023 (6 months post-particle implantation, 1 month post-surgical procedure).

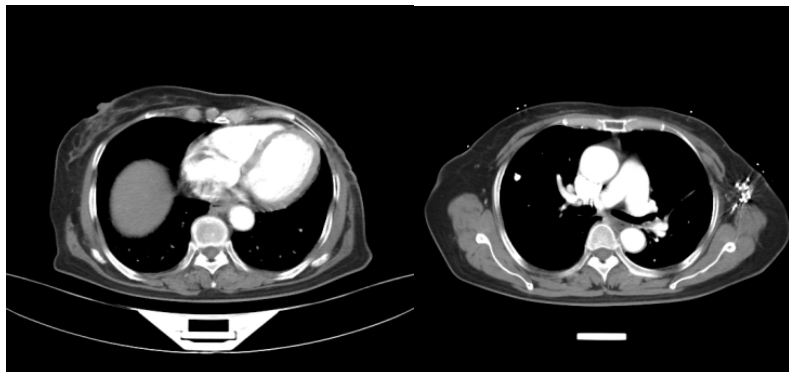


Figure 11. April 10, 2023 (CT scan 1 month post-surgery).

Postoperative adjuvant therapy: From April 11, 2023 to July 21, 2023, the patient received 5 cycles of TH regimen (trastuzumab 342 mg + pertuzumab 840 mg) as adjuvant therapy, followed by 1 year of anti-HER-2 therapy, with no significant toxic side effects observed.

Supportive treatment and care: including anemia correction, nutritional support, psychological counseling, fall prevention nursing, and wound care. Nursing measures are optimized according to the characteristics of elderly patients to improve treatment tolerance and quality of life.

2.5. Treatment Outcomes, Follow-Up, and Prognosis

Postoperative evaluation on April 10, 2023, confirmed complete remission (CR).

The cancer pain gradually alleviated, and the dosage of morphine sustained-release tablets was progressively tapered after particle implantation without any withdrawal reactions.

Follow-up status: Multiple follow-ups were conducted on July 19, 2023, November 6, 2023, February 20, 2024, June 25, 2024 (**Figure 12**), and January 6, 2026 (**Figure 13**, **Figure 14**), with all cases maintaining a complete remission (CR) status. The patient's sleep and appetite have returned to normal, anemia has been corrected, the NRS pain score is 0, psychological distress score is 0, and daily activities are normally participated in. Hypertension is stably controlled.

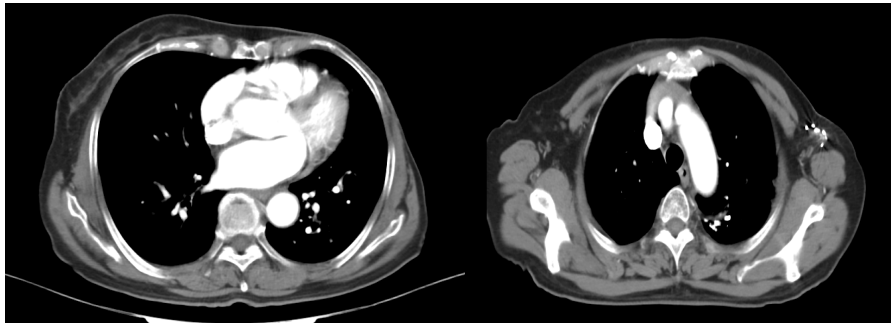


Figure 12. June 25, 2024 (CT scan 15 months post-surgery).



Figure 13. January 6, 2026 (39 months post-particle implantation, 32+ months post-surgical procedure).

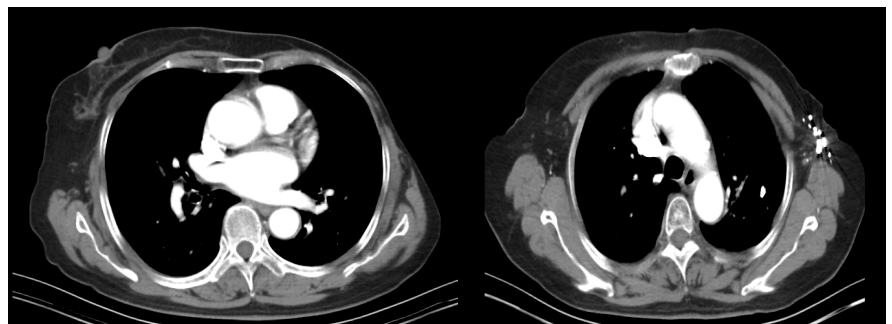


Figure 14. January 6, 2026 (CT scan 32+ months post-surgery).

3. Discussion

The diagnosis and treatment of elderly patients with advanced breast cancer require a balance between tumor control and tolerability. In this case, a 70-year-old

HER-2 positive patient achieved complete remission through comprehensive therapy. The key insights are as follows:

Multidisciplinary team (MDT) collaboration is central to the diagnosis and treatment of advanced breast cancer in elderly patients, who often present with comorbidities, multiple organ dysfunction, and complex symptoms, necessitating multidisciplinary planning [4]-[6]. In this case, the MDT team integrated expertise in oncology, pain management, minimally invasive interventions, surgery, and nursing to dynamically adjust the treatment strategy. This approach not only ensured the efficacy of antitumor therapy but also effectively controlled symptoms such as pain and bleeding, improving patient tolerance [7] [8].

For HER-2-positive locally advanced breast cancer (LABC), guidelines such as NCCN, ESMO, and CSCO recommend chemotherapy combined with dual-target therapy (trastuzumab plus pertuzumab) as the standard treatment regimen, achieving a clinical objective response rate (ORR) of nearly 90% and a pathological complete response (pCR) rate of approximately 60% [9] [10]. This patient had previously received this regimen, but the outcome was ineffective and intolerable, compelling us to explore alternative treatment options. It is well established that the nutritional supply required for tumor growth primarily originates from arterial blood. On one hand, transarterial infusion chemotherapy (TAIC) delivers chemotherapeutic agents directly into the tumor tissue or tumor bed, leveraging the “first-pass effect” of drug therapy to significantly enhance local drug concentration, improve efficacy, markedly reduce systemic adverse reactions [11]-[13], and improve patient tolerance. On the other hand, it occludes the tumor’s blood supply, achieving rapid hemostasis and blocking the tumor’s nutritional pathways, thereby inhibiting or slowing tumor growth. This is accomplished through transarterial embolization (TAE). Consequently, TAE and TAIC have become one of the primary interventional treatment modalities for various solid tumors, often used in combination. As a palliative treatment for advanced malignant tumors, TAIC can be used as salvage therapy for progression of standard first- and second-line systemic drugs, or as an alternative treatment for elderly patients or those with poor functional status (e.g., cardiopulmonary) who cannot tolerate or refuse systemic chemotherapy [14]. TAE has a wide range of indications, including pain relief, tumor growth inhibition, and bleeding prevention for benign and malignant tumors, as well as the treatment of acute or recurrent bleeding (e.g., hemoptysis, gastrointestinal bleeding, post-traumatic and iatrogenic bleeding, and hemorrhagic tumors) [15].

Through TAE and TAIC treatment, the bleeding of the breast mass was rapidly controlled, and the wound size was reduced. However, at this stage, the absolute efficacy of TAIC drugs in the patient could not be guaranteed, necessitating the implementation of radiotherapy as a treatment plan to ensure therapeutic outcomes. The application of neoadjuvant radiotherapy in inoperable LABC is relatively limited [16]-[18]. Neoadjuvant radiotherapy is not a standard neoadjuvant treatment strategy for breast cancer but can be part of an individualized treatment

plan [19] [20]. When the tumor invades the skin with extensive ulceration and bleeding, external radiotherapy is even more impractical. The NCCN breast cancer guidelines explicitly recommend that for symptomatic local lesions (e.g., skin ulcers, pain, bleeding), local radiotherapy (including external beam and brachytherapy) is a core treatment option. CT-guided radioactive iodine-125 (RIO-125) seed implantation is currently a widely used brachytherapy technique. Through CT-guided technology, radioactive seeds are precisely implanted into the tumor according to the preoperative plan, achieving accurate tumor inactivation [21]. The CT-guided seed implantation procedure includes eight steps: indication selection, preoperative preparation, preoperative CT simulation and positioning with body positioning, preoperative planning, intraoperative seed implantation, seed implantation, postoperative dosimetry evaluation, and follow-up [22] [23]. The specific implementation of CT-guided seed implantation requires a multidisciplinary team, including physicians from the departments of radiotherapy, surgery, interventional medicine, internal medicine, nuclear medicine, as well as physical therapists, anesthesiologists, and nurses [24]. The ¹²⁵I particle has a half-value layer of 0.025 mm Pb, with a half-life of approximately 60 days. After 60 days, the energy is reduced to half of the initial value, decreasing to 10% of the initial energy within 6 months, and becoming negligible after 1 year. Exposure to children and pregnant women should be avoided within 2 months after particle implantation [25] [26]. For prolonged exposure (over several hours), maintain a distance of 1.5 - 2.0 cm or instruct the patient to wear lead neckties, lead vests, or lead aprons [27].

For elderly patients with large solid malignant tumors accompanied by ulceration and hemorrhage, systemic therapy alone is insufficient to rapidly control symptoms, and the extensive wound surface and extensive skin necrosis make them unsuitable for traditional external beam radiation therapy. The treatment first involves transarterial embolization combined with embolization to reduce tumor blood supply, inhibit tumor growth, and promote tumor necrosis, followed by iodine-125 (I-125) seed implantation for localized radiotherapy. This approach not only rapidly alleviates local symptoms but also creates conditions for systemic targeted combined chemotherapy. Minimally invasive treatment is characterized by minimal trauma and rapid recovery, aligning with the tolerance characteristics of elderly patients. It synergizes with systemic therapy to achieve the goal of “local control + systemic eradication” [28]-[30].

The core treatment for HER-2-positive breast cancer is anti-HER-2 targeted therapy. The dual-targeted regimen of trastuzumab combined with pertuzumab has been recommended as a Grade I regimen in the NCCN and CSCO breast cancer clinical practice guidelines. For patients who have previously received dual-targeted therapy at other institutions, our hospital continues this core strategy while incorporating chemotherapy and local therapy to maximize the precision antitumor effects of targeted therapy. Additionally, albumin-bound paclitaxel is selected to reduce the risk of adverse reactions in elderly patients and improve

treatment tolerance [31]-[33]. For elderly patients with advanced breast cancer, quality of life is as important as tumor control. Standardized cancer pain management is initiated immediately upon hospital admission, along with correction of anemia, improvement of sleep, nutritional support, and psychological counseling, effectively alleviating patient suffering and enhancing treatment confidence, thereby laying the foundation for the successful implementation of antitumor therapy [34]-[36].

4. Conclusion

For elderly patients with advanced breast cancer, particularly those with large tumor masses that have ulcerated and bled, the adoption of an individualized comprehensive treatment plan under the MDT model—centered on targeted therapy combined with minimally invasive local interventions, surgery, and comprehensive supportive care—can effectively control tumor progression, alleviate symptoms, improve quality of life, and even achieve complete remission. This approach provides a feasible strategy for the diagnosis and treatment of similar patients.

Informed Consent

The patient has signed the informed consent form.

Ethical Approval

The procedures used in this study were in accordance with the principles of the Declaration of Helsinki.

Acknowledgements

The authors thank all the participants for their contributions to this study.

Funding

This study was supported by the Guangdong Provincial Medical Research Fund (Project No.: 2016A2020088).

Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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