研究速報

Transcatheter Arterial Embolization for Breast Cancer

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乳癌に対する経動脈塞栓術

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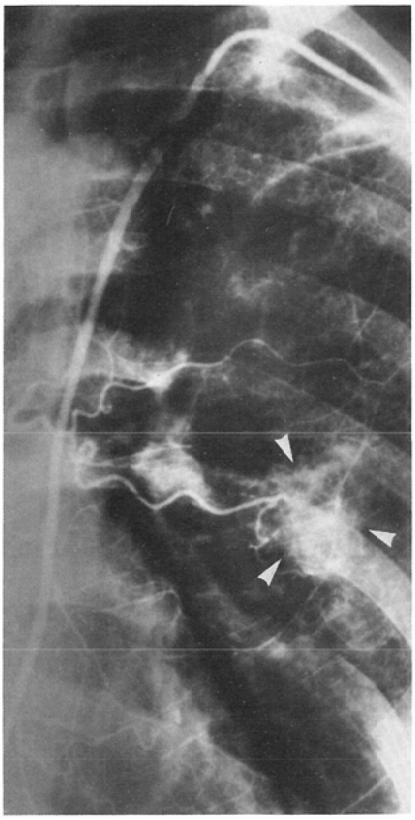
局所進行乳癌は術後の局所再発率が高く術前及び術後にも治療を行う必要がある．我々は術前療法として新しく経動脈塞栓術を行い原発巣及びリンパ節転移巣に著明な壊死変化を起こさせることに成功した．この治療法は病巣に多量の抗癌剤を投与することが可能であり，しかも抗癌剤が徐放性に末梢血中に遊離されるため抗癌剤の動注療法に見られるような末梢血中の高濃度の抗癌剤に起因する骨髄抑制等の全身的な副作用は全く見られない．さらに塞栓物質として gelatin-powder を用いるため乳腺及び胸壁全体に高濃度の抗癌剤をびまん性に長期に付着させることができ原発巣だけでなくリンパ節を含む周囲組織の癌細胞を壊死に陥らせることができる．このようにこの方法は術前の導入療法としては理想的な治療法であり，これにより局所再発率を引き下げることができると考えられる．この治療法は乳癌，特に局所進行乳癌に対して広く行うべき療法であると考え報告する．

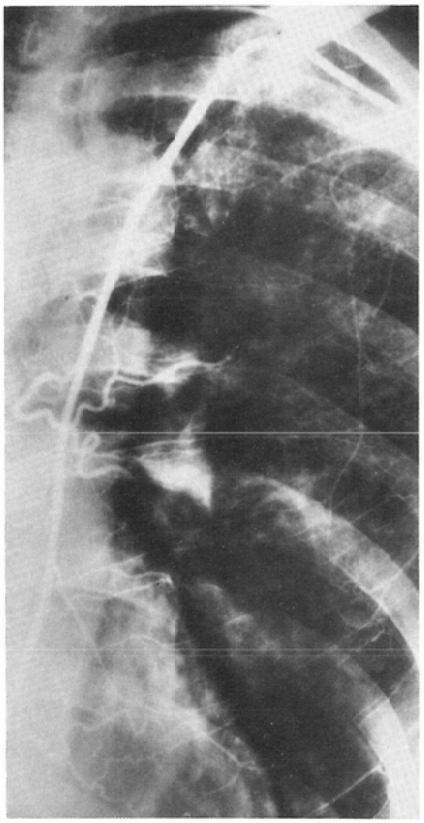
Introduction

Transcatheter arterial embolization has recently been used widely for various purposes during the past several years. We started to apply this technique for breast cancer with a new embolic material as an adjunct therapy before performing surgery[1]. With this technique primary tumors presented with a marked regres-



1a

Fig. 1a Selective left internal mammary arteriogram reveals the tumor stain (arrow heads) in the middle lung field.



1b

Fig. 1b No tumor stain is observed after transcatheter arterial embolization.

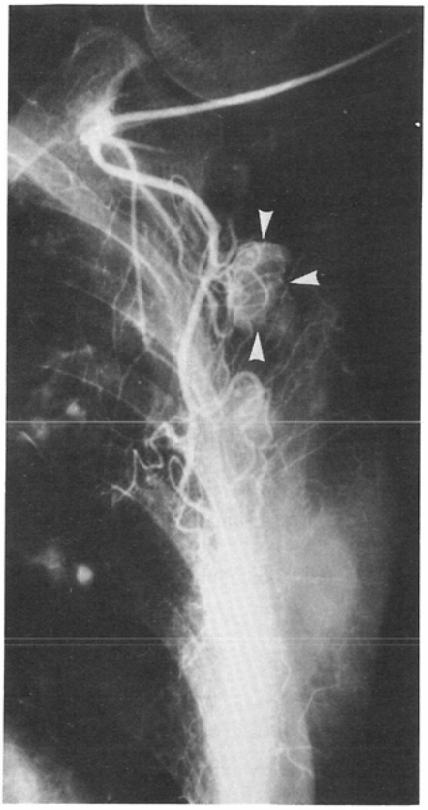
sion histologically as well as macroscopically. Furthermore, even metastatic regional lymphnodes showed remarkable necrosis. This treatment has an excellent potential as an adjunct presurgical treatment for breast cancer.

Materials and Methods

From Oct. 1981 through Dec. 1982, 9 patients with breast cancer (Stage II: 2 patients, Stage IIIa: 4 patients, Stage IIIb: 3 patients)[2] received transcatheter arterial embolization. A catheter was introduced through the femoral artery or the axillary artery by Seldinger's method. The embolic material, consisting of a new absorbable gelatin powder mixed with anticancer agent (Mitomycin-C or Adriamycin) and blood clotting factors (Factor XIII and thrombin), was injected into the internal mammary artery (in 3 patients), the lateral thoracic artery (in 3 patients), and the thoracodorsal artery (in 6 patients). Surgery was performed 3 to 24 days (mean: 9.6 days) after embolization.

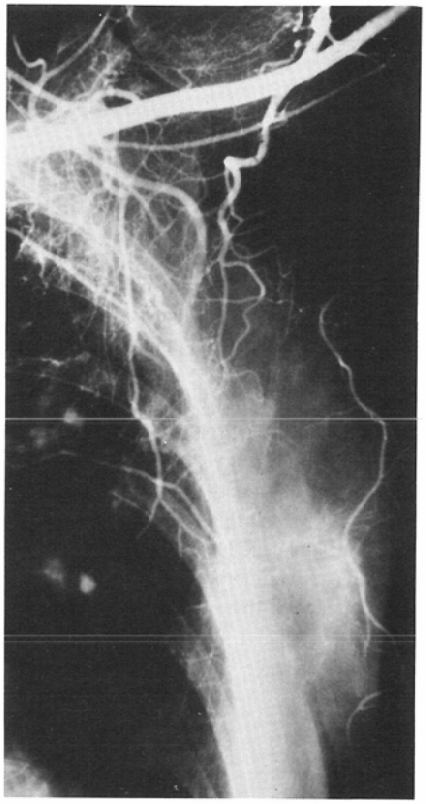
Results

In 8 patients macroscopical regression of main tumors was evaluated. The regression rate was 10% to 100%. (mean 41.8%). Histologically primary tumors showed marked necrosis in all patients (IIA in 2 patients, IIB in 5 patients, III in 2 patients, according to Shimosato's criteria[3]), while metastatic regional



2a

Fig. 2a Selective left thoracodorsal arteriogram reveals tumor stain (arrow heads) of axillary lymphnode metastasis.



2b

Fig. 2b No tumor stain is observed, with thoracodorsal artery obliterated, after transcatheter embolization.

lymphnodes also showed necrotic change (I in 1 patient, IIA in 4 patients, IIB in 2 patients, no lymphnode metastasis in 2 patients). No complication interfering with surgery due to embolization was observed. All patients underwent surgery successfully and are doing well without recurrence for periods of 2 to 16 months after embolization.

Discussion

Harrington et al. described that transcatheter arterial embolization offers hemostatic control for recurrent breast cancer[4]. To our knowledge, however, there is no report of applying this technique for administering anticancer agent to the tumor site of breast cancer.

As has been reported lately, arterial infusion of anticancer agent is an effective measure for breast cancer[5]. It causes, however, several complications such as myeloproliferative suppression or digestive tract disturbances due to high concentration of the infused agent in the systemic circulation. On the other hand, transcatheter arterial embolization, while allowing high doses of anticancer agent to reach the tumor site selectively, produces no such systemic disturbances. Moreover our new embolic material stays thrombotic for a longer period than that of others[6], simultaneously cutting off the arterial blood supply to the tumor and accelerating the necrotic change more effectively.

Transcatheter arterial embolization, which is very effective for both primary tumor and metastatic

regional lymphnode, can reduce the stage of the lesion and local recurrence rate is also expected to be reduced by this treatment.

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