

# Histopathological Criteria for Assessment of Therapeutic Response in Breast Cancer\*

*Committee for Production of Histopathological Criteria, Japanese Breast Cancer Society*

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In preoperative drug therapy (chemotherapy, endocrine therapy, etc.) or radiotherapy for breast cancer, various degrees of histological changes of cancer, tissue occur depending on the sensitivity of cancer cells to treatment. Factors involved include would the type, dose, and administration method of drugs, the type of isotope, dose, and irradiation method of radiation, duration of treatment, and the interval between the last dose and resection of cancer tissue. Histopathological criteria for assessment of therapeutic response in breast cancer have been established according to degrees of histological changes of the cancer tissue.

In the assessing therapeutic response, we should compare the histopathological findings of the largest cross section of the resected specimen containing the center of the lesion after treatment, and the histology of lesion before treatment.

## **Classification of Response Criteria**

**Grade 0** No response

Almost no change in cancer cells after treatment.

**Grade 1** Slight response

1a) Mild response

Mild changes in cancer cells regardless of the area, or marked changes in seen in less than one third of cancer cells.

1b) Moderate response

Marked changes in one third or more but less than two thirds of tumor cells.

**Grade 2** Marked response

Marked changes in two thirds or more of tumor cells.

**Grade 3** Complete response

Necrosis or disappearance of all tumor cells. Replacement of all cancer cells by granuloma-like and/or fibrous tissue.

In the case of complete disappearance of cancer cells, pretreatment pathological evidence of the presence of cancer is necessary.

Below table summarizes the response criteria (Grade 1 and 2).

Degree of changes Rate of changed area	Mild change	Marked change
< 1/3	1a	1a
1/3 ≤ to < 2/3	1a	1b
2/3 ≤	1a	2

**Note 1:** Mild changes include slight degenerative changes in cancer cells not suggestive of the death of cancer cells (including cancer cells with vacuolation of cytoplasm, eosinophilic cytoplasm and swelling of the nucleus, etc).

**Note 2:** Marked changes include marked degenerative changes in cancer cells suggesting that the cancer cells could barely survive (including liquefaction, necrosis, and disappearance of the cancer cells).

**Note 3:** When response assessment of intraductal components and lymph node metastases is necessary, the above-mentioned criteria should be used and the assessment result for the intraductal components (d) and lymph node metastases (n) can be added to the result of assessment of primary lesion response as shown below: [Example: Grade 1a + 1b(d) + 2(n)].

**Note 4:** Biopsy specimens (obtained by core needle biopsy or incisional biopsy) should not be used for the final response assessment; but histopathological findings of individual specimens should be described.

**Note 5:** If the therapeutic response ranges over two grades, the lower grade of response should be selected.

**Note 6:** For Grade 3 assessment, multiple specimens must be examined.

\*English version of the Part 4 of the 13th edition of the General Rules for Clinical and Pathological Recording of Breast cancer, The Japanese Breast Cancer Society, published by Kanehara & Co., Ltd., Tokyo, September 1998.

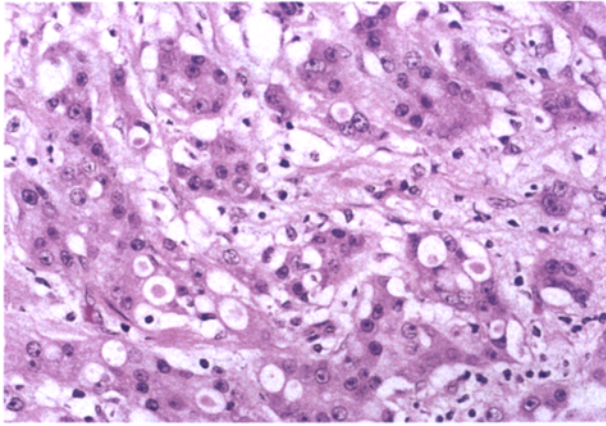


Fig 1. Resected specimen showing mild response to chemotherapy.

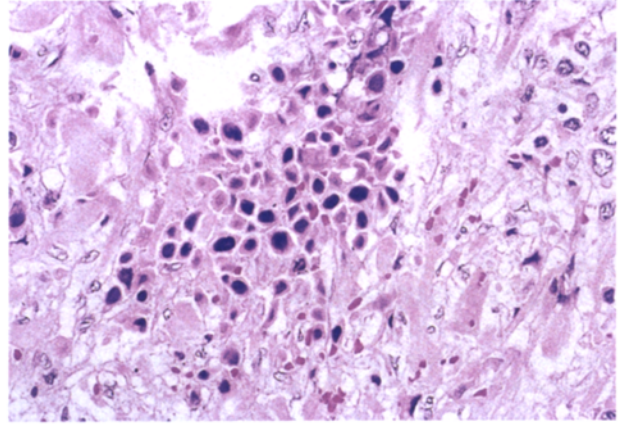


Fig 3. Resected specimen showing marked response to chemotherapy.

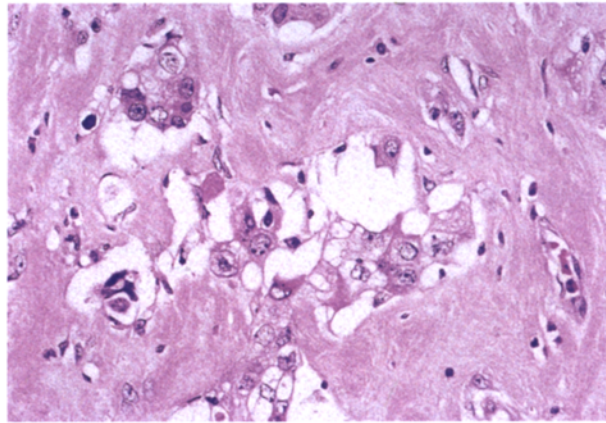


Fig 2. Resected specimen showing mild response to chemotherapy.

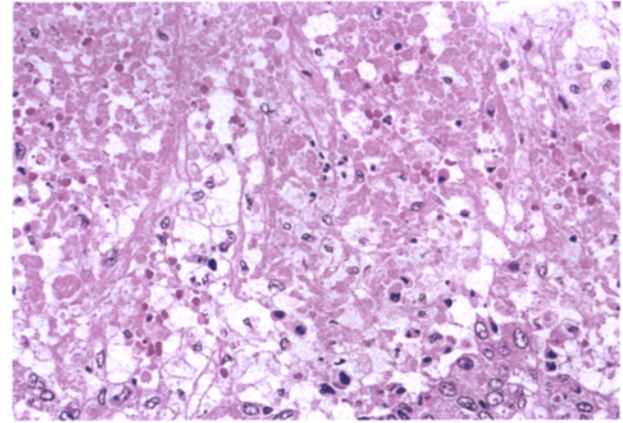


Fig 4. Resected specimen showing marked response to chemotherapy.

### **Acknowledgement**

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