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Lobular breast cancer and breast-conserving surgery – risk of reoperations, residual cancer cells and local recurrence

Submission date
09/04/2024

Recruitment status
No longer recruiting

Registration date
04/09/2024

Overall study status
Completed

Last Edited
25/03/2026

Condition category
Cancer

[_] Prospectively registered
[_] Protocol
[_] Statistical analysis plan
[X] Results
[_] Individual participant data

Plain English summary of protocol

Background and study aims
Breast cancer is the most common cancer in women globally. Today, breast cancer is commonly detected early in most patients and can be treated with breast-conserving surgery. Breast-conserving surgery refers to the removal of the tumor in the breast with free margins, in contrast to the surgical procedure where the whole breast is removed (mastectomy). Breast-conserving surgery must be combined with postoperative radiotherapy to the remaining breast tissue. Breast-conserving surgery combined with radiotherapy has a similar outcome as mastectomy in terms of overall survival rates. Breast-conserving surgery is associated with a higher risk of not being radical when the cancer is diagnosed all the way out to the edges in the excised specimen. In patients with non-radical first surgery, further surgery must be done. There are well-known risk factors for non-radical surgery and among them invasive lobular cancer and tumor size are the most important. Breast cancer can develop from different parts of the breast where invasive cancer of no special type is the most common. Invasive lobular cancer develops from the milk-producing part, whereas the most common type develops from the milk ducts. The invasive lobular subtype grows in an insidious way, making it hard to detect clinically and radiologically, and it is associated with a higher risk of non-radical surgery. The aim of this study is to examine if invasive lobular cancer is associated with a higher proportion of residual cancer cells in the surgical sample after the first and second re-excision compared to other subtypes after the first non-radical breast-conserving procedure. A secondary aim is to define if residual cancer cells in the following surgeries are associated with a higher risk of any recurrence and breast cancer specific death, even though the final surgery is radical.

Who can participate?
All adult female patients undergoing breast-conserving surgery for breast cancer or pre-stages of breast cancer at Skåne University Hospital in Malmö, Sweden, during the years 2015-2016. For comparison, patients from Skåne University Hospital and Kristianstad Central Hospital in 2017 will also be included.

What does the study involve?
This study will examine the patients' medical records. Information will be extracted from the

pathology reports of the re-excised specimen where the remaining cancer will be controlled for, the extent of the remaining cancer and what final surgery has been done. The researchers will extract information about adjuvant treatment, any recurrence and death. They will compare invasive lobular cancer with invasive cancer of no special type. The findings will be compared with what is registered in the national quality register of breast cancer. All data collected will be compiled with no possibility of identifying patients and no new information about the patients will be gathered.

What are the possible benefits and risks of participating?
There is no physical risk for the participants since the study is solely observational. A possible disadvantage is the intrusion on privacy from having data extracted from personal medical records. This intrusion is limited by the ethics committee´s definition of what data is collected, only allowing access to a specific part of the medical record and time period. The aim of this study is to better guide future breast cancer patients and their surgeons in the decision of what type of surgery to perform.

Where is the study run from?
Region Skåne (Sweden)

When is the study starting and how long is it expected to run for?
August 2018 to December 2024

Who is funding the study?
1. Avtal om läkarutbildning och forskning (ALF) (governmental funding of clinical research within the healthcare system) (Sweden)
2. Maggie Stephens Stiftelse (Sweden)
3. Gunnar Nilssons Cancerstiftelse (Sweden)
4. Lund University (Sweden)
5. Region Skåne (Sweden)

Who is the main contact?
Dr Anna Allfelt, anna.allfelt@med.lu.se

Contact information

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Additional identifiers

Study information

Scientific Title
Invasive lobular carcinoma in the breast and its association with residual cancer in re-excisions and locoregional recurrence

Acronym
Lobreex

Study objectives
Positive margin after breast-conserving surgery in patients with invasive lobular carcinoma is associated with a higher proportion of residual cancer cells in the re-excised specimen, in comparison to invasive cancer of no special type, and thus associated with a higher risk of locoregional recurrence even if the second surgery is radical.

Ethics approval required
Ethics approval required

Ethics approval(s)
1. Approved 30/08/2018, Regional Ethical Review Board (Sandgatan 1, Lund, 223 50, Sweden; +46 (0)462224180; eva.elvstrand@epn.lu.se), ref: Dnr 2018/622

2. Approved 13/03/2022, The Swedish Ethical Review Authority (Box 2110, Uppsala, 750 02, Sweden; +46 (0)10-4750800; registrator@etikprovning.se), ref: Dnr 2022-00878-02

Primary study design
Observational

Study design
Observational retrospective cross-sectional record review, multicenter design with internal and external validation cohorts

Study type(s)
Diagnostic

Health condition(s) or problem(s) studied
Female breast cancer patients undergoing breast-conserving surgery

Interventions
All female patients undergoing breast-conserving surgery at Skåne University Hospital Malmö due to in situ or invasive breast cancer from 1 January 2015 to 31 December 2016 will be included as study patients (n = 432). In addition, the researchers will use two consecutive validation cohorts of all patients undergoing breast-conserving surgery at Skåne University Hospital Malmö and Kristianstad Central Hospital from 1 January 2017 to 31 December 2017 (n = 190 and n = 157, respectively).

In a previous study (ISRCTN32164784), the patients' medical records from the surgical, pathology, operational and radiology departments were collected extracting pre-defined factors in connection with an ordinary surgical workup. Post-operative data was also analyzed to identify risk factors of a positive margin.

In this study, additional information will be extracted from pathology reports on those patients undergoing a primary and a secondary re-excision, due to non-radical surgery. The researchers will control for remaining cancer including the total extent, subtype and final surgery made. Further, they will extract information regarding the adjuvant treatment given. The patients with locoregional and distant recurrence will be identified through the medical records gathering information regarding the mode of detection, histology of the recurrence, biomarkers and what treatment these patients were offered. Finally, death and cause of death will also be controlled for in the medical records. The findings of any recurrence, death and cause of death will be validated through the national quality register for breast cancer, Nationellt Kvalitetsregister för

Bröstcancer (NKBC). All data will be compiled pseudonymized and no new information about the patients will be gathered except existing information already known by the patient.

Intervention Type
Procedure/Surgery

Primary outcome(s)
Locoregional recurrence-free interval. Time to event will be defined from the date of first surgical intervention of primary breast cancer to the date of diagnosis of locoregional recurrence or the last day of follow-up in case of no locoregional recurrence. The locoregional recurrence-free interval will be presented for the whole cohort and stratified by the primary invasive cancer of no special type, invasive lobular carcinoma and ductal carcinoma in situ and the number of re-excisions. Data sources include medical records and the NKBC registry.

Key secondary outcome(s)
1. The proportion of patients of all primary breast cancer and/or in situ cancers with involved margins at first surgical intervention who will undergo no, one or multiple additional surgeries. The proportion of patients with residual cancer cells in their additional excised specimen as well as the final type of breast surgery (BCS or mastectomy) will also be recorded. Data sources include medical records.
2. Distant recurrence-free interval. Time to event will be defined from the date of first surgical intervention of primary breast cancer to the date of diagnosis of distant recurrence or the last day of follow-up in case of no distant recurrence. Distant recurrence-free interval will be presented for the whole cohort and stratified by the primary invasive cancer of no special type, invasive lobular carcinoma and ductal carcinoma in situ and the number of re-excisions. Data sources include medical records and the NKBC registry.
3. Breast cancer-specific survival. Time to event will be defined as the date of first surgical intervention of primary breast cancer to the date of breast cancer death, date of death from any other cause or date of database lock down for patients still alive. Breast cancer-specific survival will be presented for the whole cohort and stratified by the primary invasive cancer of no special type, invasive lobular carcinoma and ductal carcinoma in situ and the number of re-excisions. Data sources include medical records and the NKBC registry.

Completion date
30/12/2024

Eligibility

Key inclusion criteria
1. Female patients >18 years
2. Breast-conserving surgery as a primary surgical procedure
3. Final diagnosis of invasive or in situ cancer of the breast

Participant type(s)
Patient

Healthy volunteers allowed
No

Age group

Mixed

Lower age limit
18 Years

Upper age limit
100 Years

Sex
Female

Total final enrolment
779

Key exclusion criteria
1. Male patients
2. Primary surgery not coded as breast-conserving surgery
3. Neoadjuvant treated
4. Benign final pathology result

Date of first enrolment
01/01/2015

Date of final enrolment
31/12/2017

Locations

Countries of recruitment
Sweden

Study participating centre
Skåne University Hospital, Department of Surgery
Jan Waldenströmsgata 11A
Malmö
Sweden
205 02

Study participating centre
Kristianstad Hospital, Department of Surgery
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Sponsor information

Organisation
Lund University

ROR
https://ror.org/012a77v79

Funder(s)

Funder type
Charity

Funder Name
Avtal om läkarutbildning och forskning (ALF) (governmental funding of clinical research within the healthcare system)

Funder Name
Maggie Stephens Stiftelse

Funder Name
Gunnar Nilssons Cancerstiftelse

Alternative Name(s)
Gunnar Nilsson Cancer Foundation

Funding Body Type
Private sector organisation

Funding Body Subtype
Trusts, charities, foundations (both public and private)

Location
Sweden

Funder Name
Lund University

Funder Name
Region Skåne

Results and Publications

Individual participant data (IPD) sharing plan
The datasets generated and analyzed during the current study will be available upon reasonable request from Anna Allfelt (anna.allfelt@med.lu.se). Pseudonymized data will be made available when the paper has been published.

IPD sharing plan summary
Available on request

Study outputs

Output type	Details	Date created	Date added	Peer reviewed?	Patient-facing?
Results article		11/08/2025	25/02/2026	Yes	No