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Foci of IDC in Phyllodes Tumors: Should We Be Worried?: A Systematic Review of the Literature

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A Systematic Review of the Literature

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BACKGROUND

Phyllodes tumors are rare, fast growing fibroepithelial tumors of the breast that account for less than 1% of all breast tumors globally. They were first characterized by Johannes Muller in 1838 and most often present in the 5th decade of life. Phyllodes tumors are histologically composed of a stromal component and an epithelial component. The stromal component has a widely accepted malignant potential in up to 30% of cases. Grading of the stromal malignant potential of phyllodes tumors has been defined by the World Health Organization (WHO) as benign, borderline, or malignant based on the presence and degree of stromal cellularity, atypia, mitotic activity, border infiltration versus circumscription and stromal overgrowth. The epithelial component has traditionally been thought to be largely unrelated to invasive cancer pathology, though sporadic cases have been reported of collision between invasive ductal carcinoma (IDC) and phyllodes tumors. We sought to better characterize this rarely reported pathology and better understand its contribution to the global burden of disease.

METHODS

A systematic literature review identified articles in PubMed, CINAHL, and Embase using the combination of keywords “invasive ductal carcinoma” and “phyllodes tumor”. Using the PRISMA guidelines as detailed in Figure 1, articles were screened for relevance to foci of IDC in phyllodes tumors. Exclusion criteria were applied and duplicates removed. 31 articles met all qualifying criteria at the conclusion of this process and were included in this systematic review.

The following elements were extracted from the included articles and were further identified:

- Publication type (i.e. case report, case series, etc.)
- Country of publication
- Year of publication
- Patient(s) age
- Grade of phyllodes tumor pathology
- Overall tumor size
- Risk factors for IDC
- Size of IDC foci
- Hormone receptor status
- Type of axillary staging completed
- Axillary status

METHODS

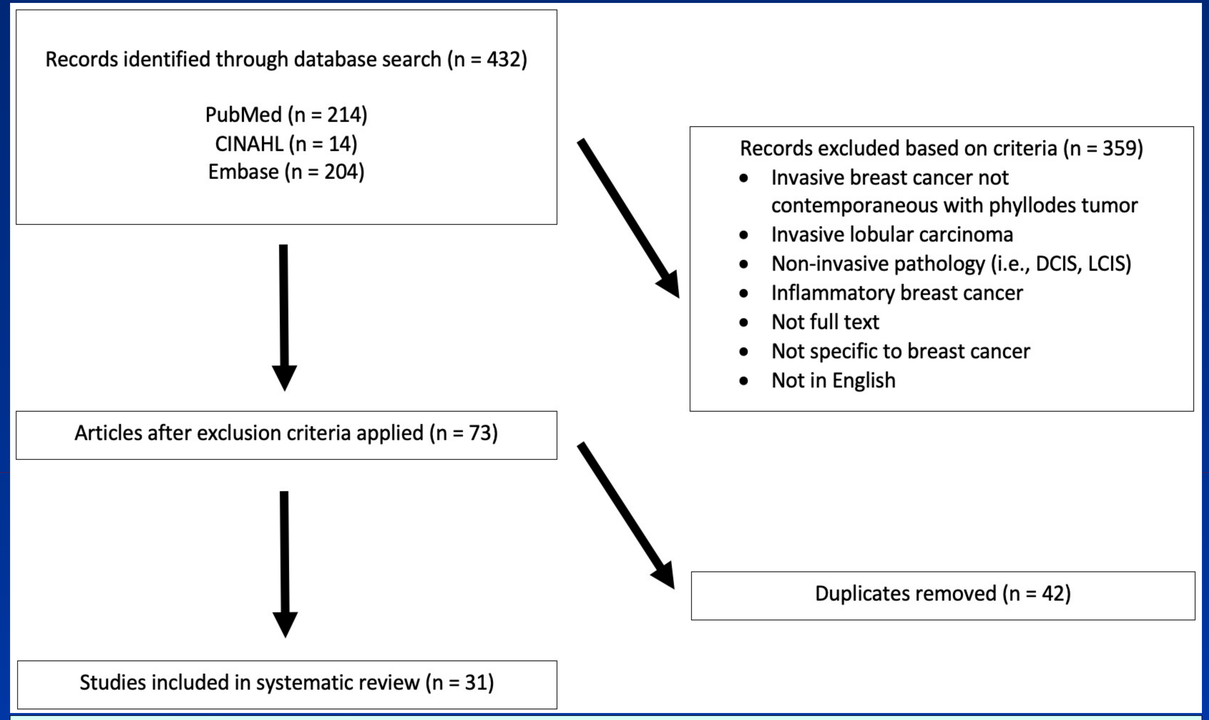

Figure 1. PRISMA flow diagram of search and study selection process.

RESULTS

Table 1. Characteristics of included patients (n = 34)

Phyllodes Grade	
Benign	29.4% (n = 10)
Borderline	29.4% (n = 10)
Malignant	35.5% (n=12)
Not Reported	5.9% (n=2)
Receptor Status	
ER/PR+	38.2% (n = 13)
ER/PR-	26.5% (n = 9)
HER 2-	35.3% (n = 12)
Not Reported	17.7% (n = 6)
Lymph Node Assessment	
SLNB Completed	26.5% (n = 9)
ALND Completed	29.4% (n = 10)
Not Reported	23.5% (n = 8)
1 or More Positive Nodes Identified	17.7% (n = 6)

RESULTS

31 articles from 19 different countries were identified. Articles meeting inclusion criteria were published between1983 and 2020. 21 articles were case reports while the remaining 10 articles were case series. Data from individuals meeting inclusion criteria within case series articles was included in our analysis. In total, 34 patient cases of phyllodes tumors with concomitant invasive ductal carcinoma were analyzed. The average age of those identified was 54 years old (range 26 to 77 years old). All patients were female. Risk factors for invasive carcinoma were identified in 8 patients, though risk factors were only reported in 65% of patient cases. Average excised tumor size was 7.6 cm (range 2.3 - 19 cm). The average focus of invasive ductal carcinoma within the excised tumor was 2.0 cm (range 0.4 - 3.0 cm), though this information was only reported in 7 cases.

There was a virtual even split among the grade of phyllodes tumor identified with both benign and borderline tumors each comprising 29.4% of cases and malignant tumors representing 35.5% of cases. Receptor status was inconsistently reported, though ER/PR+/HER2- was most commonly identified where reported. Lymph node status was characterized in 82% of cases with 17.7% of patients noted to have at least one lymph node positively identified for invasive cancer on pathologic analysis. Key characteristics of included patients are detailed in Table 1.

CONCLUSIONS

This systematic review & analysis of cases highlights the importance of close pathologic examination of all phyllodes samples for foci of invasive cancer. While incidence of IDC within phyllodes tumors remains exceedingly low, clinical concern for secondary pathology within phyllodes tumors is warranted. Wide local excision of phyllodes tumors continues to be the mainstay of treatment, however when invasive cancer is identified, further excision and nodal staging may be necessary. Carcinomatous transformation of the epithelial component of phyllodes tumors was previously thought to be less aggressive, however the percentage of axillary nodal involvement identified in this study suggests otherwise. The overall management of phyllodes tumors remains unchanged, however clinicians should remain vigilant for secondary carcinomatous pathology hiding within their often forgotten epithelial components.