Elevated Incidence of Malignant Hydronephrosis in Metastatic Invasive Lobular Carcinoma: A Single-Center Retrospective Study

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BACKGROUND

- Invasive lobular carcinoma (ILC) accounts for 15% of breast cancer (BC) cases and is increasingly recognized for its unique biological characteristics.
- Metastatic lobular breast cancer (mILC) can have different organ tropism and patterns of infiltration than invasive ductal carcinoma (IDC), which are inadequately described in contemporary literature.
- Due to loss of E-cadherin, ILC often exhibits radiographically occult infiltrative growth patterns rather than the discrete masses as seen in IDC, limiting early detection and intervention, and putting patients at risk for rapid organ compromise.
- Hydronephrosis is one such dangerous manifestation of mILC caused by diffuse infiltration of the periureteral tissue and lymphatics that leads to encasement and constriction of the ureters, causing potential renal failure if not treated early.

METHODS

- Single-Center Retrospective Chart Review
- Collected data on patient demographics, disease characteristics, and interventions received. Patients were consented to the UCSD IRB approved biorepository.
- Primary objective was to determine incidence of malignant hydronephrosis and degree of kidney injury and recovery with intervention
- Secondary objectives included highlighting rates of metastatic disease at other organ sites

TABLE 2: Malignant Hydronephrosis Outcomes

Malignant Hydronephrosis (MH) Patients	n=28 (%)
Type of Hydronephrosis	
Unilateral	13 (46.4%)
Bilateral	15 (53.6%)
Radiographic Severity of Hydronephrosis	
Mild	11 (39.3%)
Moderate	8 (28.6%)
Severe	9 (32.1%)
Urologic Interventions Received	
None	10 (35.7%)
Ureteral Stenting	12 (42.9%)
PCNs	6 (21.4%)
MH Patients without Renal Injury	**12 (42.9%)**
MH Patients w/ Renal Injury	**16 (57.1%)**
Grade 1-2 AKI	12 (42.9%)
Grade 3 AKI*	4 (14.3%)
Renal Outcomes in Malignant Hydronephrosis Patients with AKI	
Improved / Recovered	13 (46.4%)
Did Not Improve	0 (0%)
Other / Transitioned to Hospice	3 (10.7%)

**Grade 3 AKI defined by anuria for at least 12 hours, rise in creatinine over 3x baseline, or recommendations for renal replacement therapy*

TABLE 3: Sites of Metastatic Disease

Sites of Disease	Number [n=84] (%)
Bone	57 (67.9%)
Ureters (Malignant Hydronephrosis)	28 (33.3%)
Peritoneum	28 (33.3%)
Leptomeninges	24 (28.6%)
Liver	20 (23.8%)
Skin / Soft Tissue	16 (19.0%)
Lung / Pleura	15 (17.9%)
Extra-Mammary Lymph Node	11 (13.1%)
Eyes	10 (11.9%)
Intestines	10 (11.9%)
Brain	10 (11.9%)
Stomach	9 (10.7%)
Gynecological System	7 (8.3%)
Spleen or Pancreas	2 (2.4%)
Gallbladder	1 (1.2%)
Adrenal Gland	1 (1.2%)

Hydronephrosis as Initial Site of Metastasis

- Hydronephrosis was the first recognized manifestation of metastatic disease in 5 of the 28 patients with Malignant Hydronephrosis.
- This presentation represents the infiltrative characteristics and early metastatic patterns of mILC.
- Unexplained kidney injuries should prompt evaluation and workup, with consideration for occult metastatic disease in patients with ILC.

DISCUSSION & CONCLUSIONS

- In this single institution cohort, Malignant Hydronephrosis represented the second most common site of metastasis **(33.3%)**
- Our observed rate of **33.3%** notably exceeds previous reported estimates of Malignant Hydronephrosis in both general BC populations **(1.4%)** and ILC-specific cohorts **(11%-22%).**
- Even mild cases of Malignant Hydronephrosis can cause rapid renal impairment due to the infiltrative nature of mILC.
- Given these high rates and the risk of renal injury often exceeding severity on imaging, clinicians should maintain a high level of suspicion and awareness as early recognition and prompt management can improve outcomes in the majority of cases.

TABLE 1: Patient Characteristics

Patient Characteristics	Number [n=84] (%)
Median Age (range)	56.8 years (22 years-77 years)
Ethnicity	
White	64 (76.2%)
Hispanic	8 (9.5%)
Black	2 (2.4%)
Asian	4 (4.8%)
American Indian / Native American	1 (1.2%)
Other	5 (5.9%)
Breast Cancer Subtype	
ER+/HER2-	77 (91.7%)
Triple Negative	5 (6.9%)
HER2+	2 (2.4%)

FIGURE 1: Breast Cancer Subtypes

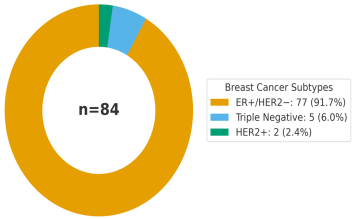


FIGURE 2: Renal Impairment

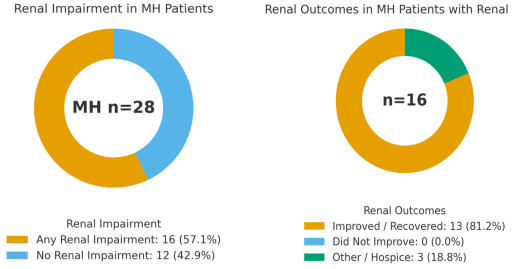


FIGURE 3: Renal Outcomes

(MH = Malignant Hydronephrosis)

REFERENCES