

ELECTRONIC SUPPLEMENTARY MATERIAL

Contrast-enhanced mammography (CEM) versus MRI for breast cancer staging: detection of additional malignant lesions not seen on conventional imaging

Method of tissue processing by the pathologist

Wide local excision specimens were received fresh and following overnight fixation in 10% neutral buffered formalin, the specimens were weighed, placed in a grid and radiographed. Coordinates of imaging lesions were identified from review of the diagram and specimen radiograph and pins inserted into the specimen through the holes in the grid based on the given coordinates. Details regarding tissue processing are given in the supplementary material.

The specimens were measured and margins inked using the surgeon's orientation sutures. The entire specimen was serially sectioned in 3-5 mm parallel slices in the sagittal plane and consecutively laid out, maintaining orientation. The lesion and margins were blocked and processed using standard processing techniques. One 4µm section was cut from each block and stained with haematoxylin and eosin (H & E).

Following formalin fixation, mastectomies were serially sectioned in 5-10 mm parallel slices in the sagittal plane, with slices either held together by overlying skin (akin to a book-end) or consecutively laid out, maintaining orientation. If a lesion was not apparent, or the pre-operative imaging/core biopsy suggested a predominantly in-situ process, slices were radiographed prior to blocking. Region(s) of interest (including marker clips) and margins were blocked then processed using standard techniques. One 4µm section was cut from each block and stained with H & E.

UMRN:												Patient ID:		C	E	S	M																				
	Patient Name:											Date of Surgery: ____/____/____																									
	Pathologist name:											Signature:																									
	Today's date: ____/____/____																																				
	The information provided in this red box is based on radiological findings and is intended to be an aid for the pathologist when finding the lesions in the diagram(s) above. Please use additional forms if there are >3 lesions.																																				
	Distance between edge of lesion sites - mm (please leave blank if lesions are in different breasts):										Between primary lesion and lesion 2: _____mm					Between primary lesion and lesion 3: _____mm					Between lesion 2 and lesion 3 : _____mm																
Lesion Number		1 (primary/index lesion)										2 (additional lesion)										3 (additional lesion)															
Modalities observed		MMG		US		CESM		CEMRI		MMG		US		CESM		CEMRI		MMG		US		CESM		CEMRI													
Side (L or R)		L					R					L					R					L					R										
Quadrant (circle)		UIQ		LIQ		UOQ		LOQ		Central		UIQ		LIQ		UOQ		LOQ		Central		UIQ		LIQ		UOQ		LOQ		Central							
Clock position (1-12)		1 2 3 4 5 6 7 8 9 10 11 12												1 2 3 4 5 6 7 8 9 10 11 12												1 2 3 4 5 6 7 8 9 10 11 12											
Depth		Ant third			Mid third			Post third				Ant third			Mid third			Post third				Ant third			Mid third			Post third									
Size (mm).		MMG Max: SI: AP ML:		US Max: SI: AP ML:		CESM Max: SI: AP ML:		CEMRI Max: SI: AP ML:		MMG Max:		US Max:		CESM Max:		CEMRI Max:		MMG Max:		US Max:		CESM Max:		CEMRI Max:													
Disease extent in each region/quadrant if measured more than one lesion in that region/quadrant		R/UIQ:AP:				SI:				Trans:				Max:				L/UIQ:AP:				SI:				Trans:				Max:							
		R/LIQ:AP:				SI:				Trans:				Max:				L/LIQ:AP:				SI:				Trans:				Max:							
		R/UOQ:AP:				SI:				Trans:				Max:				L/UOQ:AP:				SI:				Trans:				Max:							
		R/LOQ:AP:				SI:				Trans:				Max:				L/LOQ:AP:				SI:				Trans:				Max:							
		R/Central:AP:				SI:				Trans:				Max:				L/Central:AP:				SI:				Trans:				Max:							
Straight line distance from nipple (mm)																																					
Straight line distance from Pec. fascia (mm)																																					
BiRADS score		1		2		3		4		5		6		1		2		3		4		5		6		1		2		3		4		5		6	
Tabar/Nottingan score		1		2		3		4		5		1		2		3		4		5		1		2		3		4		5							
Tissue sampled?		Y			N			Result?				Y			N			Result?				Y			N			Result?									
	This box is for entry by the pathologist																																				
	Lesion number:		1 (primary/index lesion)										2 (additional lesion)										3 (additional lesion)														
	Diagnosis pathology																																				
	Focality (circle)		Unifocal					Multifocal					Unifocal					Multifocal					Unifocal					Multifocal									
	Circle more accurate measure (lesion size)		Micro					Macro					Micro					Macro					Micro					Macro									
	Specify max size + each dimension for accurate measure (micro/macro) (mm)		Invasive: Max: SI: AP: Trans:					Invasive +in-situ: Max: SI: AP: Trans:					Invasive: Max:					Invasive +in-situ: Max:					Invasive: Max:					Invasive +in-situ: Max:									
	Specify disease extent in each region/quadrant if measured more than one lesion in that region/quadrant (mm).		R/UIQ:AP:				SI:				Trans:				Max:				L/UIQ:AP:				SI:				Trans:				Max:						
			R/LIQ:AP:				SI:				Trans:				Max:				L/LIQ:AP:				SI:				Trans:				Max:						
			R/UOQ:AP:				SI:				Trans:				Max:				L/UOQ:AP:				SI:				Trans:				Max:						
			R/LOQ:AP:				SI:				Trans:				Max:				L/LOQ:AP:				SI:				Trans:				Max:						
			R/Central:AP:				SI:				Trans:				Max:				L/Central:AP:				SI:				Trans:				Max:						
	Straight line nipple distance (mm)																																				
	Distance between edge of lesion sites - mm (please leave blank if lesions are in different breasts):										Between primary lesion and lesion 2: _____mm					Between primary lesion and lesion 3: _____mm					Between lesion 2 and lesion 3: _____mm																

