## Title and Author(s)

Include Title of your submission and any collaborator as co-authors Title MRI – An Alternative to CT or US Guided Needle Biopsies

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## **Introduction or Patient History**

This is a 69 year old male with a history of cystoprostatectomy for bladder carcinoma. A partial cystectomy in November, 2003 revealed a high grade 3 cm. urothelial carcinoma which invaded through the lateral wall of the bladder. A subsequent cystoprostatectomy in January, 2004 revealed no residual tumor within the bladder but 3 right external iliac lymph nodes are positive for carcinoma as well as one positive right obturator lymph node. Recent MRI performed on 11/2/2006 demonstrated interval increase in size of left retro-peritoneal lymph node with new ill-defined enhancing intramuscular tissue involving the proximal left iliopsoas muscle raising concern for recurrent bladder carcinoma. MRI guided biopsy is requested.

Patient Preparation and Scan Set up

The patient's previous history and abdominal MRI dated 11-2-2006 were reviewed. The patient was interviewed on arrival and a MRI screening form was completed. The procedure, risks, and alternatives were discussed with the patient, and signed informed consent was obtained. After being screened a second time by a technologist according to MR safety guidelines, the patient was brought in to the scan room. The patient was given hearing protection and vitamin E markers were placed vertically in the lumbar region for localization purposes. The patient was then placed prone in the Siemens 1.5 T Espree MR scanner and the torso coil was placed at the level of the kidneys. Said patient was given a squeeze ball to communicate with the technologist, if necessary. The technologist then centered, landmarked and advanced the patient into the scanner. After several T2 Haste sagittal and axial pulse sequences were run, an appropriate skin site was selected and anesthetized with 1% lidocaine. An MR-compatible 10 cm 20G localization needle was inserted into the region of abnormal signal in the proximal left psoas muscle. After several needle adjustments were made, cell aspiration was performed. A total of 3 needle passes were obtained. The patient tolerated the procedure well and left the MR suite showing no signs of immediate post procedural complications.

## MR Imaging Parameters

Sequence	TR (ms)	TE (ms)	FOV	S/T	Matrix	NX	Band		
3 PI Loc									
T2 Haste Sagital	347	91	24	5 mm	256x192	1	180		
T2 Haste Axial	500	91	32	5mm	192x256	1	390		
T1 Sagital In and Out	261	2.24	24	5mm	512x384	1	475		
T1 Axial In and Out	261	2.24	32	5mm	384x512	1	475		

# Siemens 1.5 Tesla Scanner

According to patient's MR and Cytopathology reports, the previously noted lesion in the proximal left iliopsoas muscle was again demonstrated on T2 weighted pulse sequences. Cell aspiration from within the lesion was acquired and cancer cells were present. According to the radiologist who performed the muscle biopsy, said patient will follow-up with oncology and most likely be advised to undergo additional chemotherapy for recurrence of his bladder carcinoma.

### Conclusions

Lesions poorly visible on ultrasound or contrast enhanced CT can now be biopsied under MR guidance. Our ability to manipulate our pulse sequences depending on the best tissue-to-lesion contrast gives us an advantage over the other modalities. Our contrast resolution is far superior when looking for tissue differences within a structure. Using MRI for fine needle aspirations and needle core biopsies on abnormalities only seen on MRI can reduce the number of open surgical biopsies performed in the OR. This proves to be more beneficial to the patient. The procedure is less invasive and with an experienced radiologist, can be done rather quickly.

#### References

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Images

