

# Introduction of Musculoskeletal Ultrasound Examination

Tyng-Guey Wang MD

1

## Instruction Course on Musculoskeletal Ultrasound

- Basic knowledge of ultrasound
- Advantage of sonography
- Machine and setting of sonography
- Technique of sonographic examination in common joints
- Common pathology on sonogram

2

# ATLAS OF ANATOMY

Musculoskeletal Ultrasound Examination

Wang & WS Chen

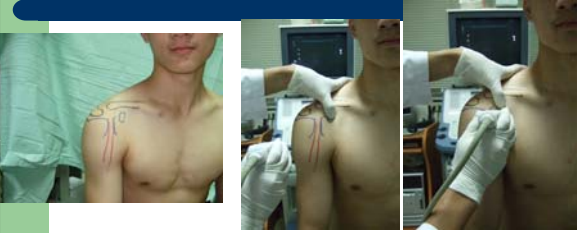
3

## Technique of Examination

- **Non-dominant** hand is more important than dominant hand

4

## How to do the biceps tendon examination



Non-dominant hand is more important

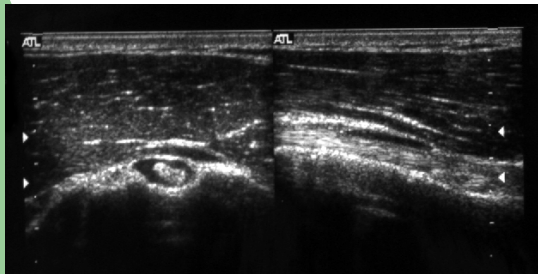
5

## Interpretation

- Always combined with **clinical information**

6

### Peri-tendineal effusion



7

### Uncertain in ultrasonography



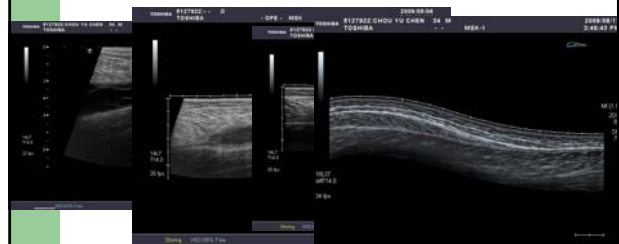
8

### 超音波檢查的臨床應用

- 非侵入性
- 較方便
- 動態檢查
- 易偵測小的病變
- 可偵測血流
- 可以當治療的工具

9

### 非侵入性：有助於追蹤檢查



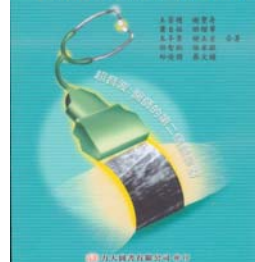
10

### 方便性

11

### 超音波：醫師的第二個聽診器

#### 骨骼肌肉超音波



12



### 方便性

15

### 動態檢查

16

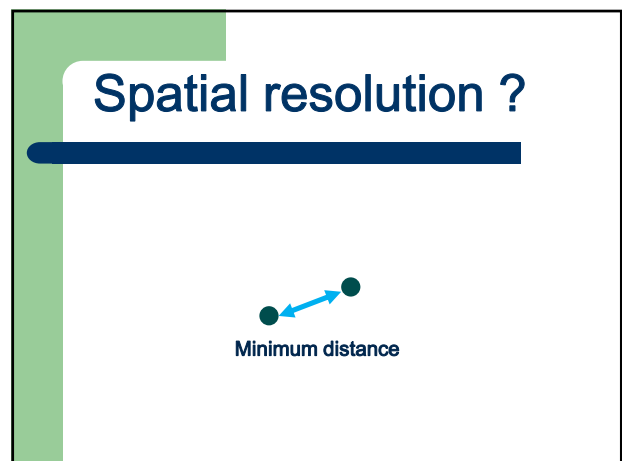
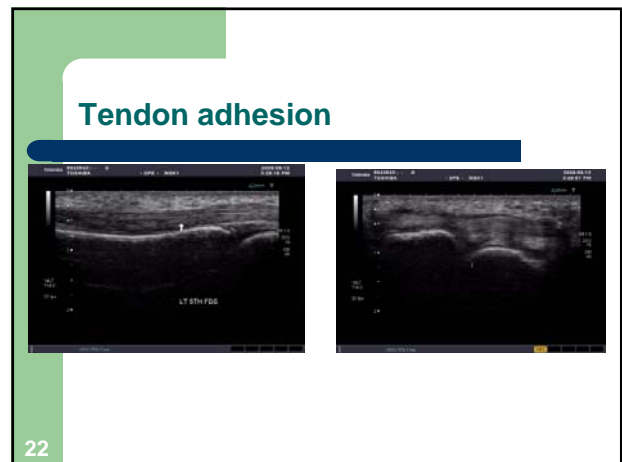
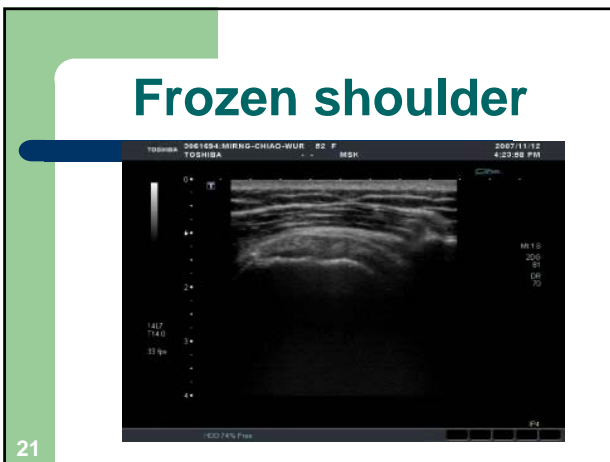
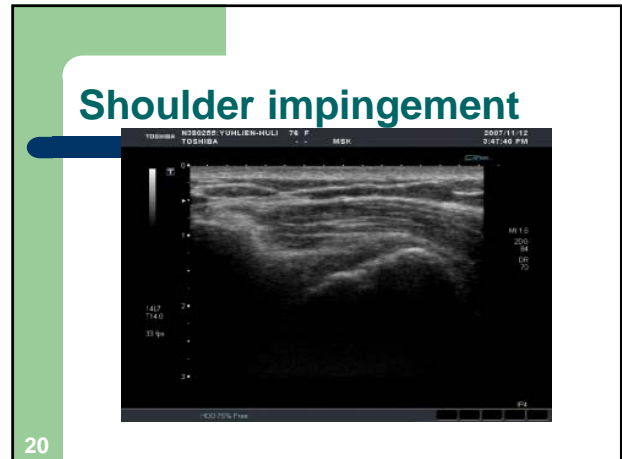
### 肩關節的夾擠症候群 Shoulder impingement syndrome

17

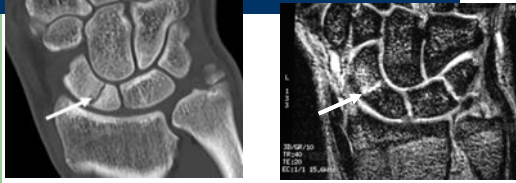
### Shoulder Impingement syndrome

- Prominent of acromion
- Hypertrophy of supraspinatus tendon
- Distension of subdeltoid bursa
- Supraspinatus tendon tendinitis
- Occurred in late stage

18



### Spatial resolution



CT: 0.4mm

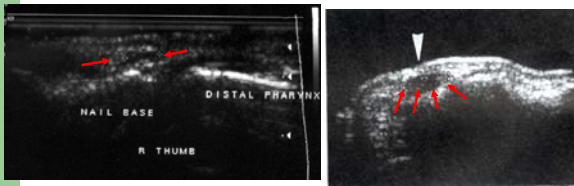
MRI: 0.6mm

### Spatial resolution



Good spatial resolution (US) make invisible internal structure visible

### Glomus



Formosan J Med 2000;4:127-133

27

### 較好的解像力



28

### 可偵測血流

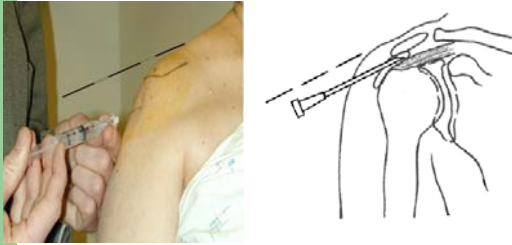


29

### 超音波引導的治療

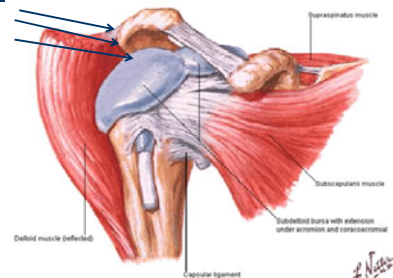
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## Subacrominal injection



31

## Subacromial bursa injection



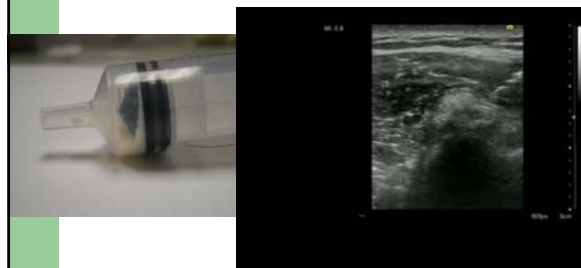
32

## Sono-guided aspiration or injection



33

## Aspiration of calcification



34

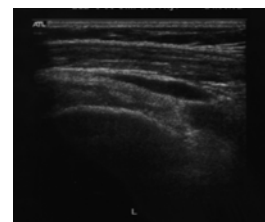
## Puncture of calcification



35

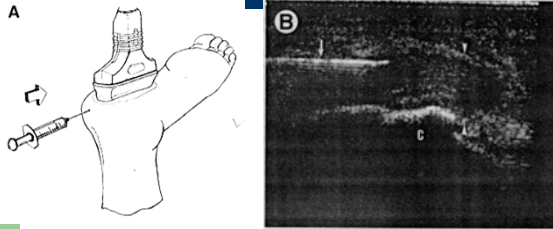
## Ultrasound-guided shoulder injection in the treatment of subacromial bursitis

- Am J Phys Med Rehabil 2006;85:31-5
- Chen MJ, Lew HL, Hsu TC, Tsai WC et al

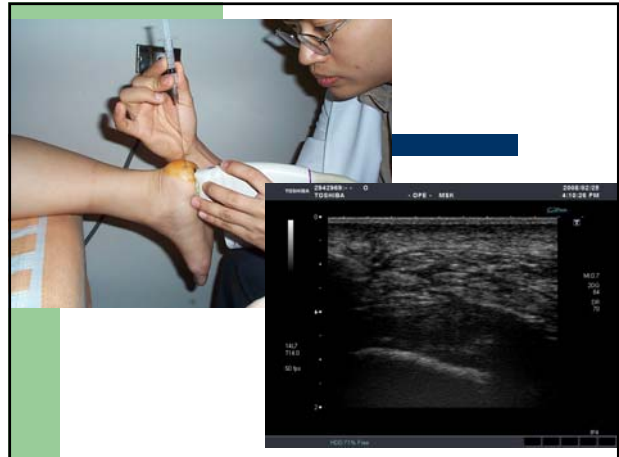




### Treatment of proximal plantar fasciitis with ultrasound-guided steroid injection



- Arch Phys Med Rehabil 2000; 81:1416
- Tsai WC, Wang CL, Tang FT et al.



### Start examination

- Patient data
- Select transducer
- Depth and focus
- Total gain
- Measurement
- Text and marker
- Doppler or Power
- Freeze
- Time-gain compensation
- Output

39



40



On/Standby switch



41



On/Standby switch



42

### Prepare the examination

- ☛ Chose an appropriate transducer
- ☛ Key in patient information

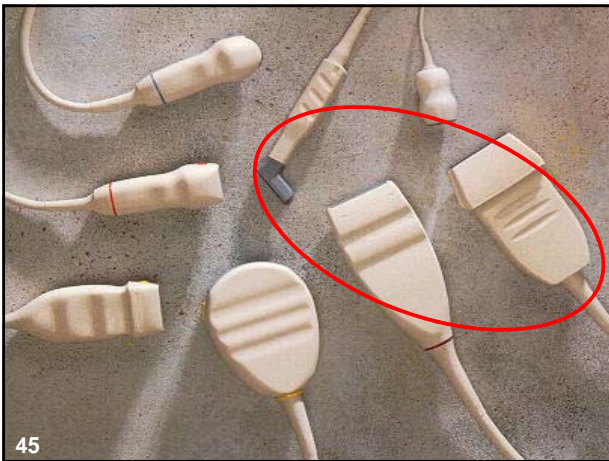


43

### Choose a preset

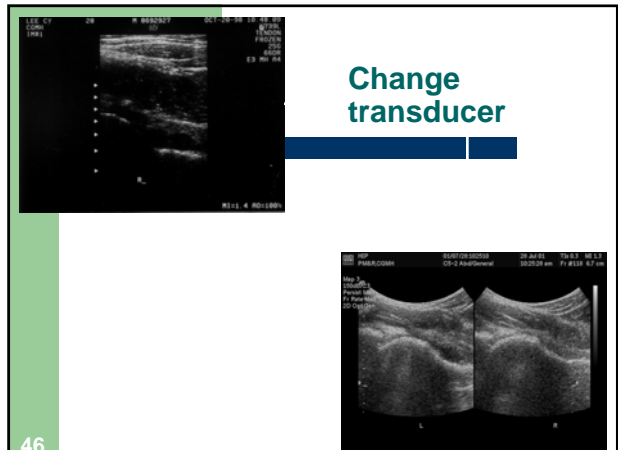


44



45

### Change transducer



46

### Adjust the proper gain



47

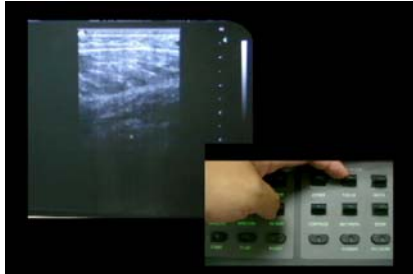
### Adjust the time-gain compensation



48

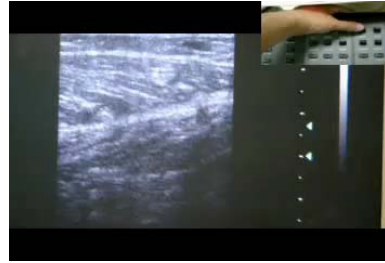


### Adjust the focus position



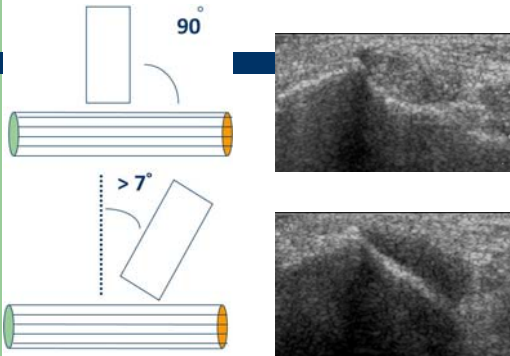
49

### Adjust focus number



50

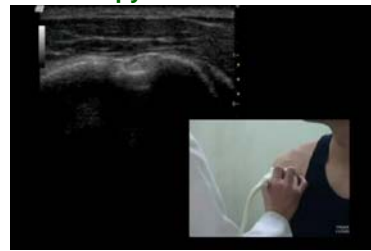
### Anisotropy



51

### Proper transducer position

Avoid anisotropy



52

### Thank You for Your Attention



53