

## THE CLINICAL APPLICATION OF SCROTAL INFRARED THERMOGRAPHY IN NORMAL AND PATIENTS WITH ACUTE EPIDIDYMITIS OR EPIDIDYMO-ORCHITIS

### Hypothesis / aims of study

We evaluate the finding of scrotal infrared thermography in normal and patients with acute epididymitis/epididymo-orchitis, and try to assess its capability through the comparison with clinical parameters.

### Study design, materials and methods

We performed the digital infrared thermography of scrotum in 15 normal male and 23 patients with acute epididymitis, and assessed the thermographic characteristics in normal male. Both thermographic patterns and thermal differences between normal and affected scrotum in acute epididymitis patients were retrospectively analyzed. Also we compared it with clinical parameters such as fever, pyuria and findings of doppler ultrasound.

### Results

Table 1. The comparison of temperature (°C) between normal and affected hemiscrotum in patients with acute epididymitis

	Normal hemiscrotum	Affected hemiscrotum	p value
Average temperature of hemiscrotum (°C)	24.94±3.66	25.72±3.51	< 0.05
Average temperature of hot spot on hemiscrotum (°C)	25.29±3.65	26.10±3.50	< 0.05

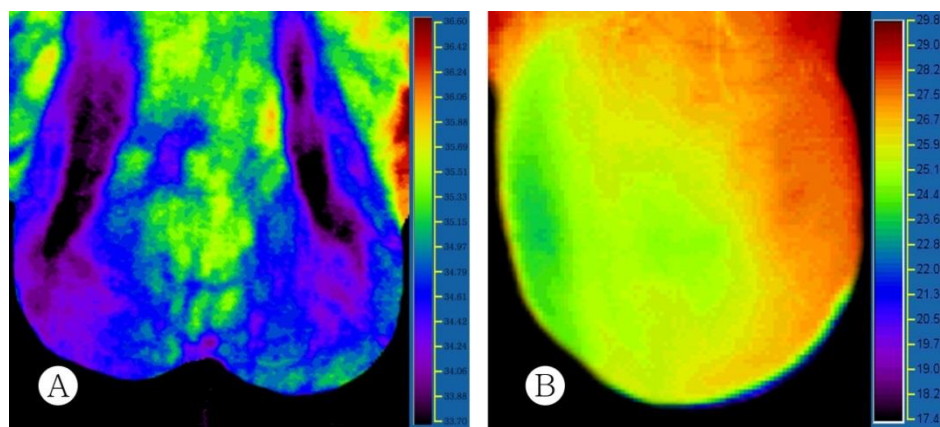


Fig. 1. (A) The thermographic image of normal man who shows similar thermal pattern of both scrotum and (B) the thermographic image of patient with acute epididymitis who reveals a different thermal pattern between normal and affected side.

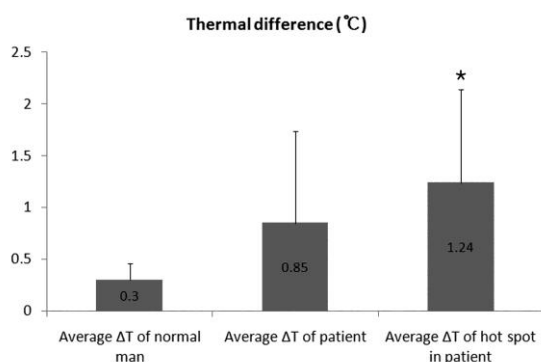


Fig. 2. The comparison between thermal differences ( $\Delta T$ ) of normal man and patient with acute epididymitis.  
\*, statistically significant ( $p < 0.05$ )

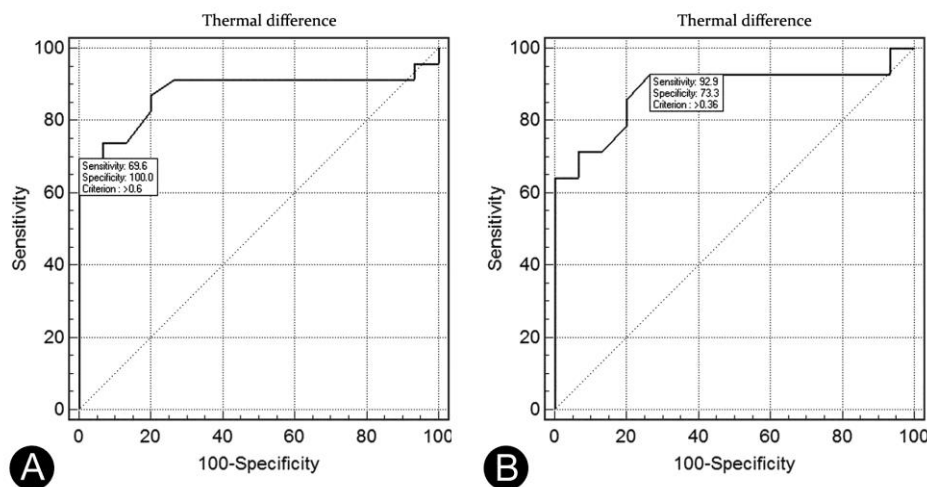


Fig. 3. Receiver operating characteristic curve of the thermal difference between normal male and patients with acute epididymitis. (A) thermal data from hot spot of hemiscrotum of patients (B) thermal data from patients who show the increase of blood flow on doppler ultrasound.

#### Interpretation of results

: In 15 normal male, thermal differences between bilateral hemiscrotums were average  $0.30 \pm 0.16$  °C, and they did not show statistical significance. By ROC curve analysis, diagnostic cut-off value, sensitivity and specificity were 0.6°C, 69.6%, 100% respectively. Sixteen of twenty-three patients presented significant thermal differences over 0.6°C. Also, the thermal differences of hot spot of patients were significantly increased comparing with that of normal scrotum. Thermography revealed that the temperature of affected hemiscrotum in patient with acute epididymitis was statistically higher than that of normal hemiscrotum as well.

#### Concluding message

Scrotal thermography had the capability as a diagnostic tool of acute epididymitis through both the comparison of thermal difference between normal and affected scrotum in patient, and ROC analysis. However, currently it was uncertain whether thermography could differentiate acute epididymitis from other intrascrotal disease. In the future, the advancement of thermographic device and more data accumulation may improve the clinical value of thermography.

#### Disclosures

**Funding:** no **Clinical Trial:** No **Subjects:** NONE