

## MEDICAL INFRARED IMAGING - BODYSCAN

CBHPM 41.50.11.36

### TECHNIQUE:

Examination performed with a medical infrared imaging sensor Termocam FLIR E85, definition 640x480, focal length 18.9mm, exposure time 1/59 s. Undressed patient for thermal stabilization for 15 minutes in thermally controlled environment (23 ° C), with minimum convection air (0.2 m / s) and relative humidity below 60%. We analyzed bilateral neurovascular territories as explained in the final sheet.

### DIAGNOSTIC IMPRESSION:

Main functional changes from systemic global assessment, according to the patient's symptoms. Specific signals in multispectral images:

#### a. Nervous System:

- The patient presents with symmetric distal polyneuropathy, bilateral distal median neuropathy, abnormal sympathetic vasomotor instability of the hands (in cold stress test), and segmental spinal sensitization in C5 on the right (dT 0.7 °C) and S1 more evident on the left (dT -1.2 °C). These findings are characteristic of a small fiber neuropathy with sensory radiculopathy, with a sympathetic maintenance pain response.
- Central autonomic dysfunction. Asymmetry in the entire body, including the head, trunk, and extremities, with an imbalance in the vasomotor activity of the sympathetic nervous system, with predominance on the left side. Additionally, there is dysregulation of the central autonomic nervous system activity, with a temperature difference (dT) of -1.2 °C. Neurovegetative characteristics are also present, including poor regulation of body temperature (thermal mantle), moderate noradrenergic hyperactivity causing peripheral vasoconstriction with a variation of -7.2 °C (dT), periocular congestion due to non-restorative sleep, and dysfunction of the gastrointestinal tract.

#### b. Musculoskeletal/Inflammatory System:

- Dysfunction of the left temporal, multifocal superior trapezius, and bilateral rhomboid, right levator scapulae and scalenes with tension of posterior cervical muscles (facet osteoarthropathy).
- Bilateral subscapular tendinopathy. Bilateral acromioclavicular osteoarthritis.
- Right lateral epicondylitis.
- Right wrist flexor tendinopathy.
- Left diaphragmatic dysfunction.
- Signs of bilateral inguinal hernia, more pronounced on the left.
- Dysfunction of the right iliopsoas and lumbosacral iliocostal, bilateral tensor fasciae latae with shortening of the hamstring and lumbar paravertebral contracture (L4/5 and L5/S1 discopathy, spondylosis, spondylo-disco-arthropathy).
- Trochanteric bursitis, more pronounced on the right.
- Knee osteoarthritis.

#### c. Vascular System:

- Venous congestion in the lower limbs in the medial thigh and right calf.

#### d. Metabolic System:

- Slow metabolism (core temperature 35.9 °C-BTT). Hypometabolism can be caused by various factors, including age, genetics, hormonal levels, body composition, physical activity level, diet, and medical conditions such as hypothyroidism and vitamin B12 deficiency.

e. Visceral System:

- Presence of liver overload (the cause may be multifactorial).
- Esophagogastric dysfunction.

Additional Information:

- Blood perfusion of the extracranial terminal branches of the internal carotid artery within usual parameters.

Multicontextualization:

1 - These changes, which include asymmetry in the entire body, an imbalance in the vasomotor activity of the sympathetic nervous system, and dysregulation of the central autonomic nervous system activity, as well as neurovegetative characteristics such as poor regulation of body temperature and dysfunction of sleep and gastrointestinal tract, may be related to a condition of chronic pain with central sensitization. Central sensitization and fatigue may be contributing factors to the manifestation of these changes, which may be exacerbated by the presence of small fiber neuropathy with sensory radiculopathy and sympathetic maintenance pain response.

2 - Based on the data above and reported clinical findings, it is possible to infer that the patient may present involvement of several myofascial chains:

- Anterior myofascial chain: Dysfunction of the iliopsoas can cause pain in the lumbar region and radiate to the thigh, as well as affect hip flexion. Shortening of the hamstrings can contribute to lower back pain and limitation of hip extension. Lumbar paravertebral contracture can cause pain and stiffness in the lumbar region and affect spine extension.
- Posterior myofascial chain: Dysfunction of the right upper trapezius, rhomboids, levator scapulae, and scalenes can cause pain in the cervical region and radiate to the shoulders and arms, as well as affect scapula elevation and rotation. Bilateral subscapular tendinopathy and bilateral acromioclavicular osteoarthritis can affect shoulder mobility and cause pain in the scapular region. Trochanteric bursitis can cause pain in the lateral hip region and limitation of hip abduction.
- Lateral myofascial chain: Dysfunction of the bilateral tensor fasciae latae can affect hip mobility and cause pain in the lateral hip and thigh region. Right lateral epicondylitis can cause pain in the lateral elbow region and limitation of wrist extension.

It is important to note that the severe pain reported by the patient may have several causes, including musculoskeletal, inflammatory, neuropathic, and autonomic dysfunctions.

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## CUTANEOUS THERMOMETRY BY INFRARED - THERMOGRAPHY

**PROCEDURE:** This patient was examined by digital infrared thermal imaging to determine asymmetric signals indicating physiological abnormalities. The digital infrared thermometry is a physiological test that evaluates thermal patterns suggestive of abnormalities. The thermal image is a reproduction of thermal changes of the skin surface of the body that changes in cases of disease and functional and structural abnormalities. Once found abnormal thermal patterns is essential to continue the relationship with medical developments. The digital infrared thermometry is a resource capable of recording thermal changes in time. A body without abnormalities has a stable and symmetric thermal pattern that does not change over time. Another objective of this study is to establish the normal or abnormal basic standard for each patient for comparison. An infrared image in a patient without disease remains identical and symmetrical for study of its evolution. Any change means the existence of local physiological changes which require investigation. In the case of a first significant asymmetry, return to the symmetrical condition and / or decreasing its intensity, which is the thermal differential indicates recovery. Sometimes the standards are complex and require clinical correlations, laboratory and / or other imaging methods in order to obtain diagnostic safety. This test alone does not diagnose cancer. There should always be used in conjunction with clinical evaluation and complementary tests. For confirmation of motor neuropathies is indicated electromyography if necessary.

Cutaneous thermometry total body consists of bilateral dermatomeric review the following territories: 1) ophthalmic nerve, 2) maxillary nerve, 3) mandibular nerve, 4) headset large nerve, 5) greater occipital nerve, 6) lesser occipital nerve, 7) cervical cutaneous nerve, 8) dorsal branches of the cervical nerves, 9) transverse nerve neck, 10) lateral supraclavicular nerves, 11) intermediate supraclavicular nerve, 12) medial supraclavicular nerves, 13) dorsal branches of thoracic nerves, 14) axillary nerve, 15) ICB nerve, 16) medial cutaneous nerve of the arm, 17) posterior cutaneous nerve of the arm, 18) medial cutaneous nerve of the forearm, 19) posterior cutaneous nerve of the forearm, 20) lateral cutaneous nerve of the forearm, 21) superficial branch of the radial nerve, 22) median nerve, 23) ulnar nerve, 24) radial nerve, 25) lateral cutaneous branch from T1 to T12, 26) medial cutaneous branches of T1 to T12, 27) dorsal cutaneous branches of T1 to T12, 28) dorsal branches of the lumbar nerves 29) dorsal branches of the sacral nerves, 30) nerves coccígeos, 31) iliohypogastric nerve, 32) ilioinguinal nerve, 33) genitofemoral nerve, 34) posterior cutaneous nerve of the thigh, 35) anterior cutaneous nerve of the thigh, 36) lateral cutaneous nerve of the thigh, 37) obturator nerve, 38) nerve common peroneal, 39) superficial peroneal nerve, 40) deep peroneal nerve, 41) sural nerve, 42) saphenous nerve, 43) medial plantar nerve, 44) lateral plantar nerve, 45) tibial nerve.

**REPORT:** The interpretation relates to an objective description of the thermal asymmetries based on information by the patient and post-exam physical signs, clinically significant.

**EXAM RESULTS:** Results are determined by studying the different patterns and differential thermal captured in the infrared images.

**CONSIDERED NORMAL VALUES:** diffuse thermal patterns with good symmetry between the contralateral regions of the body. No significant specific asymmetries without clinical correlation, and other laboratory tests, which are stable and indifferent over time and are considered as part of normal thermal patient anatomy.

**EXCHANGE CONSIDERED ABNORMAL:** localized areas of hyper-radiation or hypo radiation, thermal asymmetry between the opposite regions of the body or with temperature differentials greater than 0.3° C. typical vascular patterns of suspicious changes. Any thermal change recorded during the comparative analysis during the disease process. Non-physiological responses to abnormal or specific testing of the heat variations. The medical assistant requesting this examination must check with the held to answer any question with the descriptive and conclusive content of this report.

### COMMENTS:

The interpretation of the results of this exam and diagnostic conclusion are medical procedures depend on the joint analysis of the clinical data and other tests of a patient. For questions or further information, please contact. The intent of this report is to be used by trained health professionals to assist in the assessment, diagnosis and treatment of their patients. It is not intended to be used for self-assessment or self-diagnosis. It is appropriate file and compare this study with another study in the case of therapeutic drug monitoring.





