Techniques of physical examination.
Inspection, palpation.

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General considerations

- You should **wash your hand in the presence of the patient** before beginning the physical examination.
- A new patient warrants a **complete examination**, regardless of chief complaint.
- The sequence of comprehensive examination should **maximize the patient’s comfort**.
- As a beginner, you should **avoid interpreting your findings for the patient**.
The comprehensive physical examination; first impressions

• **General survey**: general state of health; height, weight, **build**, sexual development, motor activity, **facial expression**, state of awareness or level of consciousness.

• **Vital signs**: blood pressure, pulse number and respiratory rate.

• **Skin**: colour, lesions. Inspection and palpation of hair and nails.
Cushing’s syndrome
Acromegaly

The enlargement of the frontal and maxillary sinuses results in a prominent brow and long face.

Growth of mandible leads to a jutting jaw (prognathism).

Alveolar bone growth causes the teeth to separate.
Acromegaly

Characteristic clinical appearance manifest by coarsening of facial features due to an increase of connective tissue.
Acromegaly

Increased cartilaginous growth results in an enlargement of the ears and nose.
Macroglossia. There is also generalized visceral enlargement.

Broadening and enlargement of the hands and feet due to increased periosteal growth as well as thickening of the skin.
Appearance and behaviour

• **Facial expression**
  – The stare in hyperthyroidism
  – Immobile face of parkinsonism
  – Sad face of depression
  – Decreased eye contact may suggest anxiety, fear or sadness

• **Memory, attention**
  – Remote: inquire about birthdays, names of schools attended, jobs held, or past historical events.
  – Recent: Actual date? which day is today?
Graves’ disease

**Ocular involvement** is mediated by one or more distinct but still poorly characterised orbital-stimulating immunoglobulins: Proptosis, due to increased volume and oedema of retrobulbar fat. Shortened extraocular muscles, because of the muscle infiltration and fibrosis result in upper lid retraction. Conjunctival erythema, and periorbital oedema are evident.

**Facial expression**

The **stare** in hyperthyroidism
Hypothyroidism

- The most common cause is the Hashimoto’s thyroiditis, affects app. 1% of adult population. This woman demonstrates the typical hypothyroid face. She also had a slow, hoarse, deep voice and lassitude (state of feeling very tired in mind or body).

- Dull, puffy face. Oedema does not pit with pressure. The lateral eyebrows are thin.
Inspection of the face

- **Acromegaly**: Enlargement of both bone and soft tissues. The head is elongated, with bony prominence of the forehead, nose and lower jaw. Soft tissues of the nose, lips, and ears also enlarge.
- **Cushing’s syndrome**: moon face with red cheeks. Excessive hair growth may be present.
- **Myxedema**: Dull, puffy face. Oedema does not pit with pressure. The lateral eyebrows are thin.
- **Nephrotic syndrome**: Oedematous and often pale face. Swelling usually appears first around the eyes and in the morning.
Appearance and behaviour

• **Level of consciousness**
  
  – Is the patients awake and alert?
  
  – Does the patient seem to understand your questions and respond appropriately or is there a tendency to lose track of the topic and fall silent or even sleep? If the patient does not respond, escalate the stimulus in steps:
  
  • Speak to the patient in a loud voice
  • Shake the patients gently
  • If there is no response that means severe reductions in the level of consciousness (stupor or coma)
Appearance and behaviour

• **Posture and motor behaviour**
  – What is the patient’s preferred posture?
    • Preference for sitting up in left-sided heart failure
    • For leaning forward with arms braced in chronic obstructive pulmonary disease.
  – Is the patient restless or quiet?
    • Fast, frequent movements of hyperthyroidism
    • Slowed activity of hypothyroidism
  – Is there any apparent involuntary motor activity?
    • Tremor?
    • Paralysis?
An elderly patient who looks chronically ill. He is unable to speak more than two or three words at a time due to shortness of breath. He has intercostal muscle retraction when breathing and sits upright. Hi is thin with diffuse muscle wasting.
Appearance and behaviour

• **Dress, grooming and personal hygiene**
  – How is the patient dressed?
    • Excess clothing – cold intolerance – hypothyroidism
    • Cut-out holes or slippers may indicate gout, untied slippers suggests oedema
  – Do personal hygiene and grooming seem appropriate to the patient's age?
    • Unkempt appearance may be seen in depression and dementia
    • Fingernails chewed to the quick may reflect stress
Inspection of the skin

**Color:**

- Increased pigmentation (brownness)
- Loss of pigmentation (vitiligo)
- Redness (the colour of oxyhemoglobin)
- Pallor (best assessed where the horny layer of the epidermis is thinnest – fingernails, the lips, mucous membranes, particularly those of the mouth and the palpebral conjunctiva)
- Cyanosis (best identified in the lips, oral mucosa and tongue). Central (heart failure, advanced lung disease, abnormal haemoglobin), peripheral (decreased blood flow, venous obstruction)
- Jaundice (sclera)

**Lesions:**

- Anatomic location (acne affects the face, upper chest, psoriasis knees and elbows, Candida infection: intertriginous areas)
- Distribution: Vesicles in a unilateral dermatomal pattern are typical of herpes zoster
Brownness and depigmentation
Cyanosis

Bluish discoloration of nail beds and fingertips, usually associated with hypoxemia and/or hypoperfusion.
Jaundice
Herpes zoster

- Vesicles in a unilateral dermatomal pattern are typical of herpes zoster
From very small to 2 cm; pulsatility is often demonstrable, when pressure with a glass slide is applied. Distribution: upper trunk, face, arms.
The comprehensive physical examination

- **Eyes:** Check visual acuity, screen the visual fields. Inspection of sclera and conjunctiva. Compare the pupils, test their reactions to light. Assess the extraocular movements.

- **Ears:** Inspection of auricles, canals. Check auditory acuity.

- **Nose-sinuses:** Inspection of nasal mucosa and septum. Palpate for tenderness of the frontal and maxillary sinuses.

- **Throat:** Inspection of lips, oral mucosa, teeth, tongue, tonsils and pharynx.
Inspection of the eyes

• Position and abnormalities of the eyes and eyelids
  – Ptosis: Dropping of the upper lid (myasthenia gravis, damage of oculomotor nerve, and damage to the sympathetic nerve supply)
  – Exophthalmia: the eyeball protrudes forward. When bilateral, it suggests the infiltrative ophthalmopathy of Graves’ disease.
  – Periorbital oedema: because the skin of the eyelids is loosely attached to underlying tissues, oedema tends to accumulate there easily. Causes: allergy, myxoedema, nephritic syndrome.
Protruded eyeballs and periorbital oedema
The comprehensive physical examination

- **Neck**: Inspection and palpation of cervical lymph nodes. Inspection and palpation of the thyroid gland. Deviation of the trachea. Observe sound and effort of the patient’s breathing.

- **Thorax and lung**: Inspection and palpation of spine and muscles of the upper back. Inspection, palpation and percussion of chest. Identification of the level of diaphragmatic dullness. Listen to the breath sounds.

- **Breast, axillae**: Inspection and palpation of breasts. Palpation of axillary nodes.
Inspection of tongue and region under tongue

- Thick white coat on the tongue – Candida infection.
- Smooth tongue: Loss of the papillae suggests deficiency of riboflavin, niacin, folic acid, B12 or iron.
- Aphthous ulcer: painful, small, round or oval ulcer that is white or yellowish grey.
The comprehensive physical examination

- **Cardiovascular system:**
  - Observation of jugular venous pulsation
  - Inspection, palpation and of carotid pulsation. Listen to carotid bruits
  - Palpation of the apical impulse
  - Listen to heart sounds

- **Abdomen:**
  - Inspection, palpation and percussion of the abdomen.
  - Assess the liver and spleen
  - Try to feel the kidneys
  - Palpation of abdominal aorta, and its pulsation

- **Genitalia and hernias in men:**
  - Examine the penis and scrotal contents and check for hernias
The comprehensive physical examination

• Lower extremities:
  – Peripheral vascular system: palpation of femoral pulses and peripheral arterial pulses. Inspection for varicose veins.
  – Palpation of inguinal lymph nodes
  – Palpation for pitting oedema
  – Musculoskeletal system: palpate the joints, check their range of motion.
  – Nervous system: Assessing of muscle bulk, tone and strength; sensation and reflexes.
The comprehensive physical examination

- **Nervous system:**
  - Mental status: orientation, mood, abnormal perceptions, memory, attention, calculating abilities.
  - Cranial nerves: check sense of smell, strength of the temporal and masseter muscles, corneal reflexes, facial movements, gag reflex.
  - Motor system: muscle bulk, tone and strength of major muscle groups.
  - Sensory system: pain, temperature, light touch, vibration, and discrimination.
  - Reflexes.

- **Additional examinations:**
  - Rectal digital examination
Purpose of palpation

• Examination of the body surface (skin: smoothness, dryness, irregularities etc.)
• Examination of internal organs (shape, size, consistency etc.)
• To look for abnormal resistances
• Detection of painful areas
• To feel movement of fluids within the body
Palpation; general rules

• Cut your fingernails short
• Have warm hands
  – If not, warm them by rubbings, washing in hot water or start palpating through the gown of the patient
• Use the pads of your fingers
• Use both hands
• Move them smoothly
• Palpate first lightly, than perform deep palpation
• Avoid causing pain to the patient
Palpation of the skin

- **Moisture**
  - Dryness – hypothyroidism
  - Sweating - hyperthyroidism

- **Temperature**
  - Generalized warmth in fever or hyperthyroidism
  - Local warmth of inflammation
  - Coolness in hypothyroidism

- **Mobility and turgor**
  - Lift a fold of skin and note the ease with which it lifts up (mobility - decreased in oedema)
  - The speed with which it returns into place (turgor – decreased in dehydration)
Pitting oedema

Low albumin, immobility, and venous insufficiency have lead to accumulation of fluid in lower extremity. Note residual imprint of fingers following application of pressure.
Characteristics of palpable mass

• **Size:**
  – head of the pin, pepper, bean, peanut, green nut, apple, fist of child or of an adult, head of a child or of an adult etc.

• **Surface:**
  – Smooth, nodular (micro/macro), lobulated, irregular

• **Consistency:**
  – Soft, glandular, rubbery, firm, hard (like cartilage, wood, stone), fluctuating
Characteristics of palpable mass

- **Mobility**
  - Freely moving (movable, shifting), attached to skin or underlying tissue, matted together (lymph nodes)

- **Other palpable characteristics**
  - Pulsation
  - Resonance
  - Tenderness
  - Bruise
Cervical adenopathy

Massive right side cervical adenopathy due to metastatic, intraoral squamous cell cancer.
Palpation of lymph nodes

• Using the pads of your index and middle fingers, move the skin over the underlying tissues in each area
  – The patient should be relaxed, with neck flexed slightly forward and slightly toward the side being examined.
  – Note the size, shape, mobility, consistency and any tenderness. Small, mobile, discrete, non tender nodes are frequently found in normal persons.
    • Tender nodes suggest inflammation
    • Hard or fixed nodes suggest malignancy
Submandibular lymph nodes are normally ovoid, smoother, and smaller than the lobulated submandibular gland against which they lie.