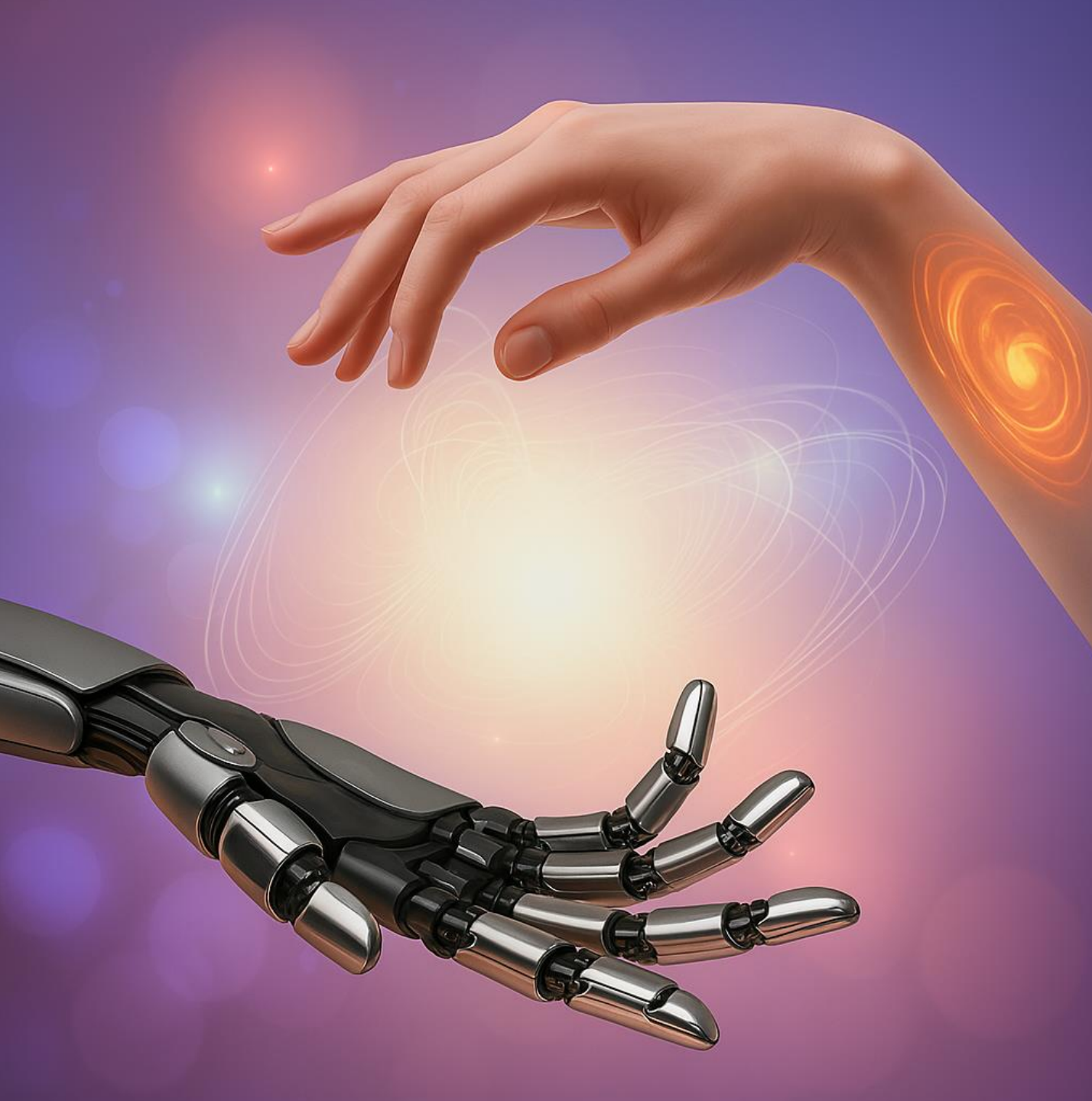




INTELLIGENZA ARTIFICIALE IN MEDICINA E INNOVAZIONE NELLA RICERCA CLINICA E METODOLOGICA

Coordinatore: Prof. Domenico Russo

Supervisor: Prof. Vito Romano

Co-Supervisor: Prof. Darren Shu Jeng Ting

***Cartella Clinica Elettronica,
big data analytics e AI
applicata all'Oftalmologia***

BACKGROUND

Accesso limitato ai dati

- Difficile condividere informazioni tra strutture e medici



Errori medici

- Scrittura illeggibile, scarsa reperibilità di dati clinici, esami duplicati



Archiviazione complessa

- Documenti ingombranti, a rischio smarrimento o danneggiamento



Tempi lunghi

- Ricerca e aggiornamento delle informazioni lenti e macchinosi



Privacy poco tutelata

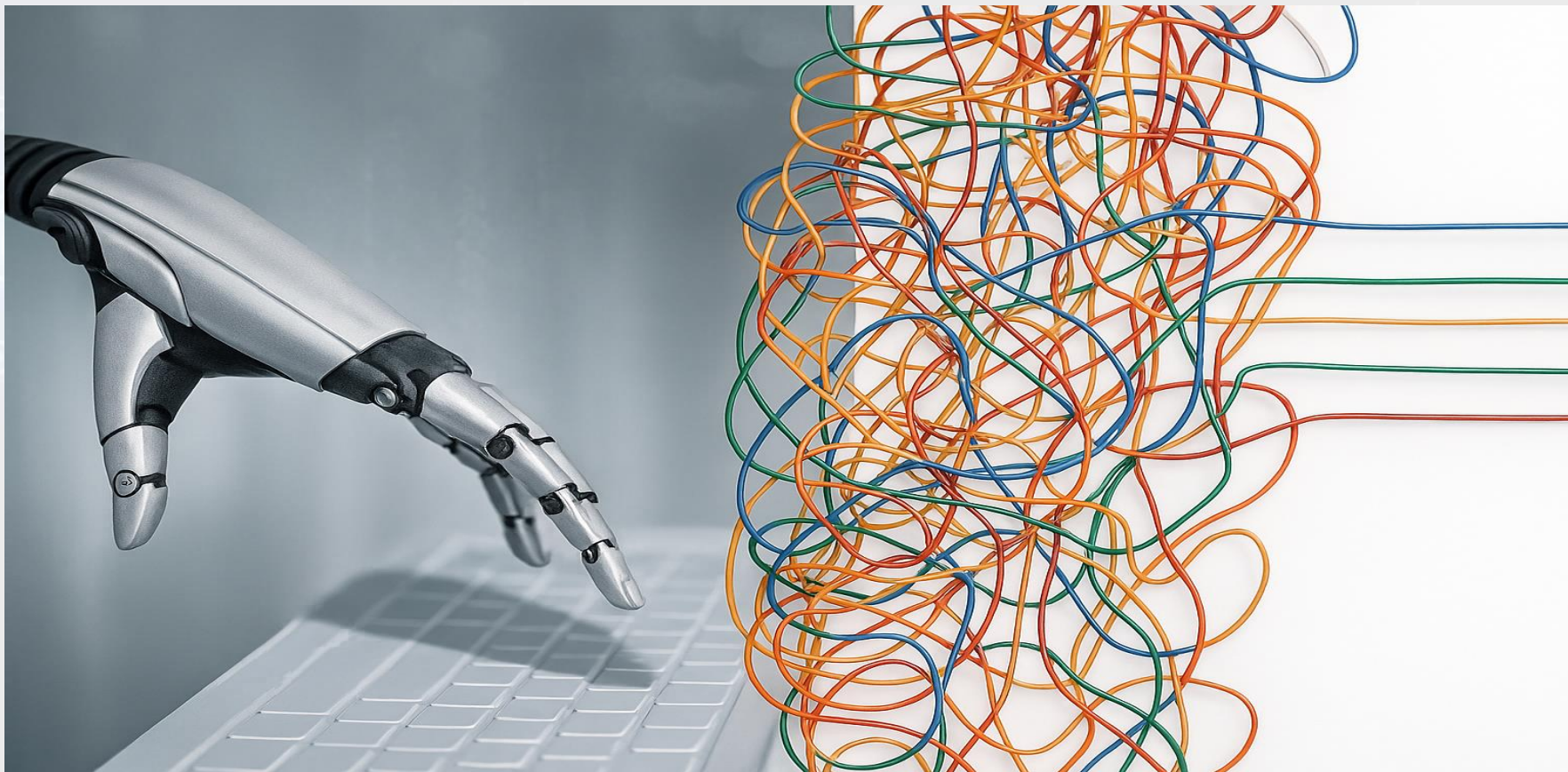
- Accessi non controllati, nessun sistema per monitorare accesso



Scarsa integrazione

- Mancanza di visione unificata sul percorso di cura del paziente

B A C K G R O U N D



LE CARTELLE CLINICHE
ELETTRONICHE HANNO
TRASFORMATO LA GESTIONE
SANITARIA MIGLIORANDO:



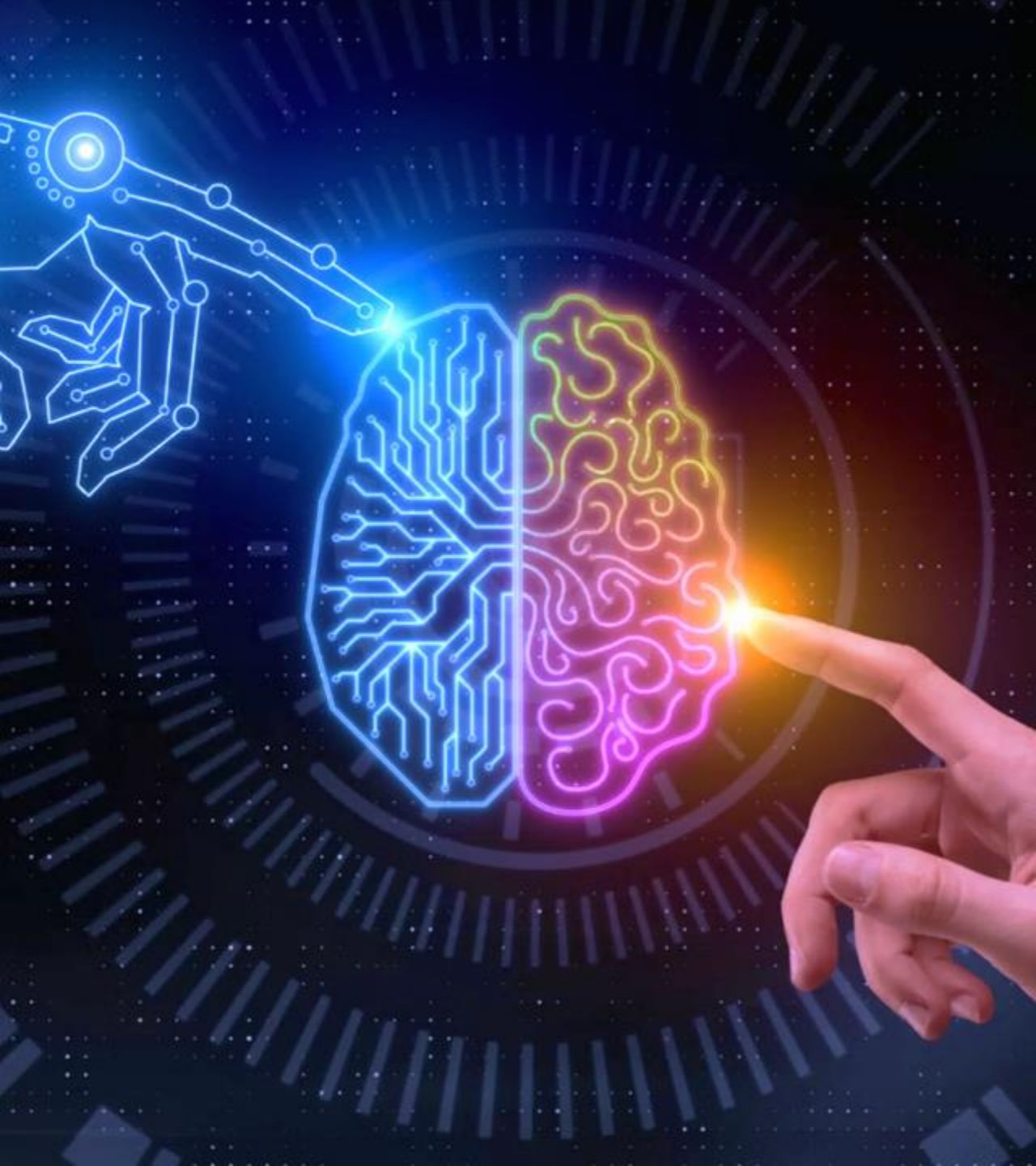
- **ORGANIZZAZIONE E
ACCESSIBILITÀ DELLE
INFORMAZIONI CLINICHE**



- **EFFICIENZA OPERATIVA
NEGLI OSPEDALI E
AMBULATORI**



- **MONITORAGGIO AVANZATO
PER DECISIONI PIÙ
INFORMATE**



COSA INTRODUCE DI NUOVO?

- **Pathways diagnostici**
- **Dai sintomi alla diagnosi**
- **L'importanza dell'imaging**
- **Standardizzazione dei dati**
- **Lavoro di squadra**

Pathways diagnostici

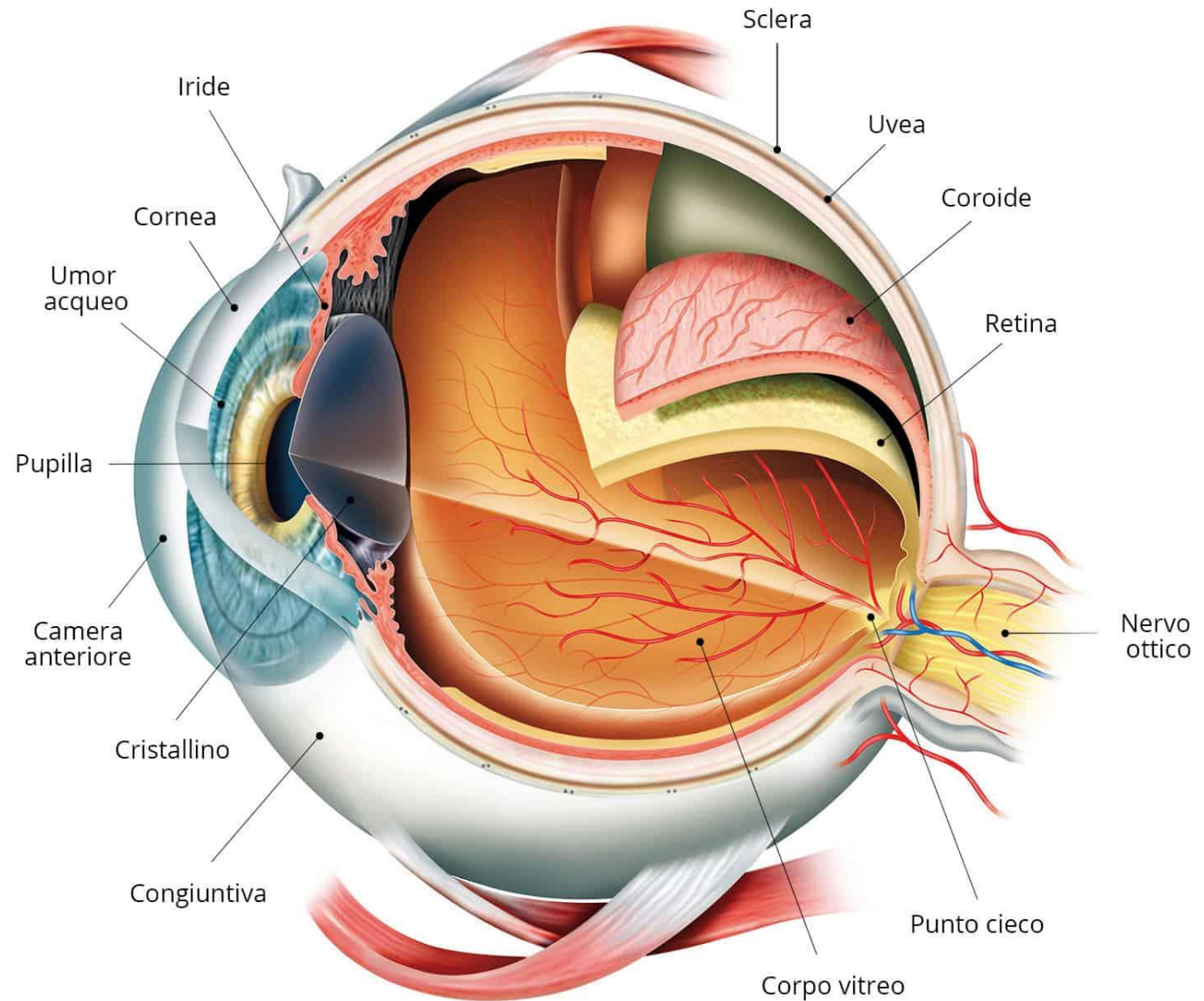
Indirizza l'esame obiettivo verso specifiche localizzazioni dalla patologia



Focalizzazione sulle alterazioni funzionali e anatomiche caratteristiche dalla malattia

Pathways

- 1 EYELASHES, EYELID, TEAR FILM
- 2 PALPEBRAL NEOPLASTIC DISORDERS
- 3 LACRIMAL SYSTEM
- 4 CONJUNCTIVA-CORNEA-SCLERA
- 5 CONJandCOR NEOPLASTIC DISORDERS
- 6 PUPIL-IRIS-LENS
- 7 PAPILLA
- 8 AC-VITREO
- 9 RETINA and CHOROID CLINIC
- 10 VITREO-RETINA SURGERY
- 11 ORBITAL DISORDERS
- 12 NEURO-OPHTHALMOLOGY



Diseases

Metabolic

Cardiovascular

**Inflammatory and
Autoimmune**

Neurological

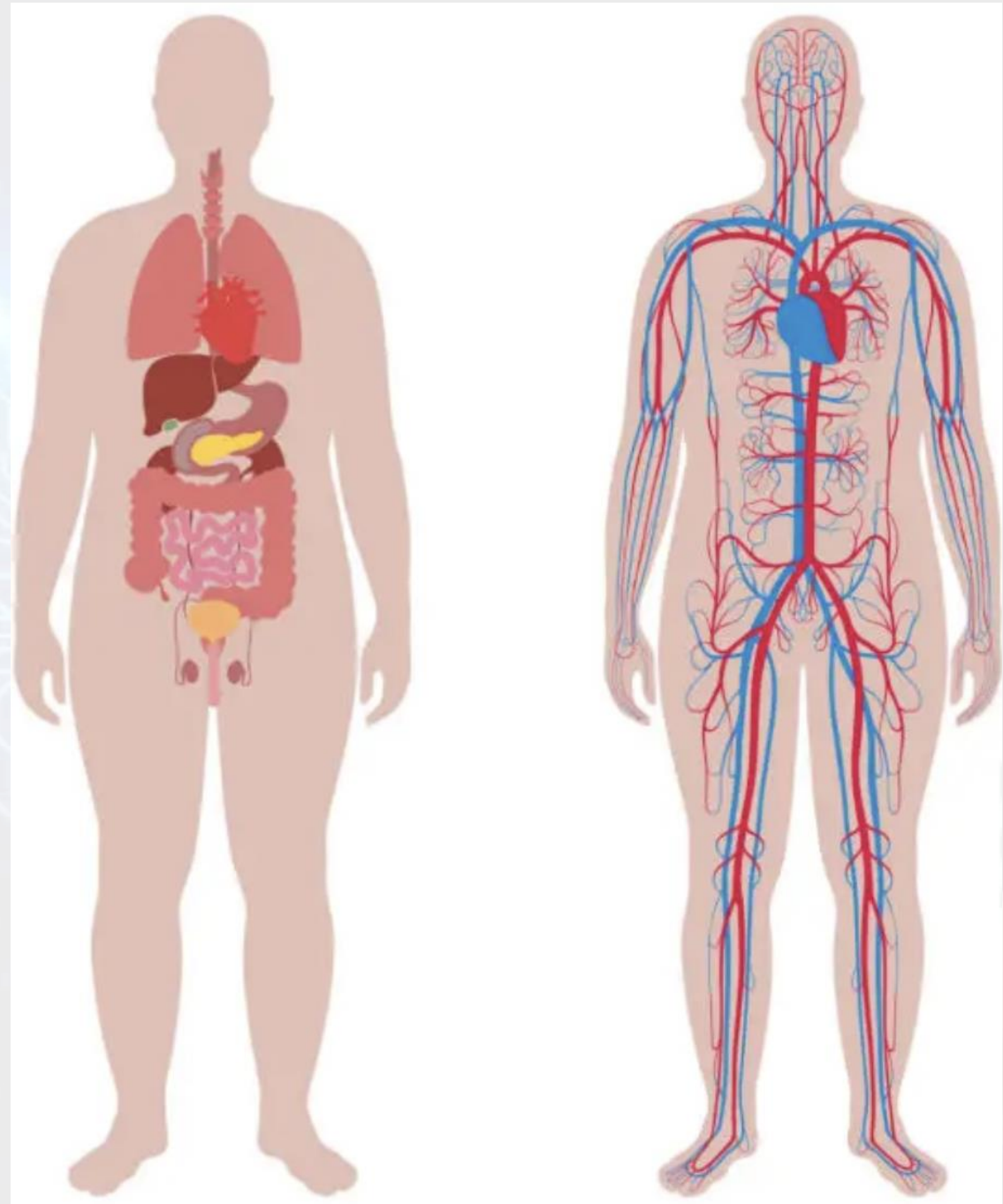
Infectious

Oncological

Genetic

Dermatological

Kidney

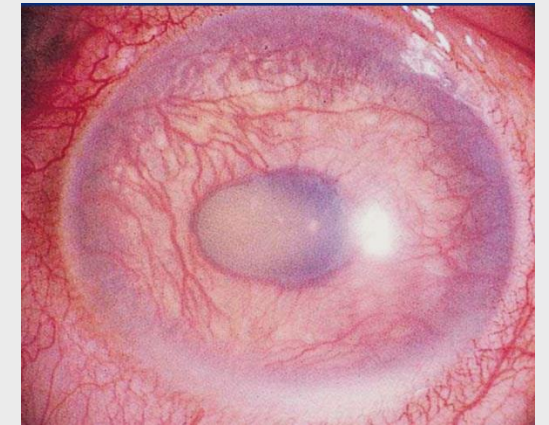


Diabetes Mellitus

6 PUPIL-IRIS-LENS

7 PAPILLA

9 RETINA and CHOROID CLINIC



Arterial Hypertension

7 PAPILLA

9 RETINA and CHOROID CLINIC



Rheumatoid Arthritis

1 EYELASHES, EYELID, TEAR FILM

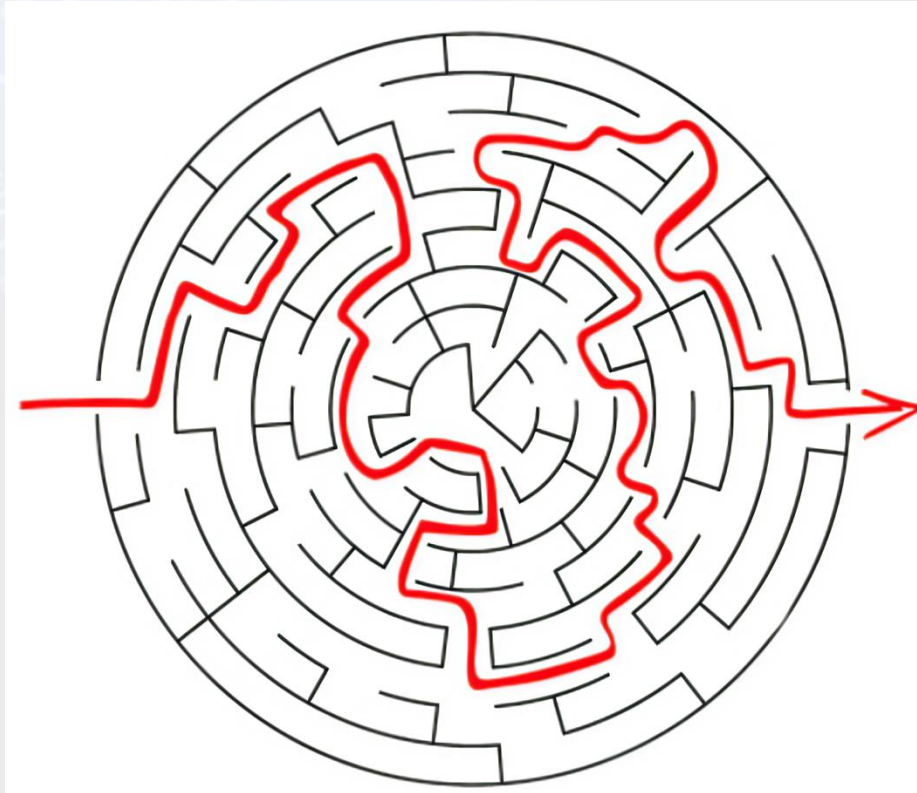
4 CONJUNCTIVA-CORNEA-SCLERA

8 AC-VITREO



Dai sintomi alla diagnosi

Orienta il percorso diagnostico



Facilita l'individuazione di correlazioni clinicamente significative

Approccio preciso tempestivo ed efficace nella definizione della diagnosi

S
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Pain	Swelling eyelid	Proptosis
Restricted eye movement	Redness	Blurry vision
Light sensivity	Halos	HIGH IOP (nausea, vomiting)
Discharge	Watering	Photophobia
Clolor vision loss	Loss of visual field	Floaters

S
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Pain

**Swelling
eyelid**

Proptosis

**Restricted
eye
movement**

Redness

Blurry vision

**Light
sensitivity**

Halos

**HIGH IOP
(nausea,
vomiting)**

Discharge

Watering

Photophobia

**Clolor vision
loss**

**Loss of
visual field**

Floaters



***Possible
diagnosis???***

Conjunctivitis

Dacryocystitis

Blepharitis

Endophthalmitis

Chalazion or Stye

Pain

**Swelling
eyelid**

Proptosis

**Restricted
eye
movement**

Redness

Blurry vision

**Light
sensivity**

Halos

**HIGH IOP
(nausea,
vomiting)**

Discharge

Watering

Photophobia

**Clolor vision
loss**

**Loss of
visual field**

Floaters



***Possible
diagnosis???***

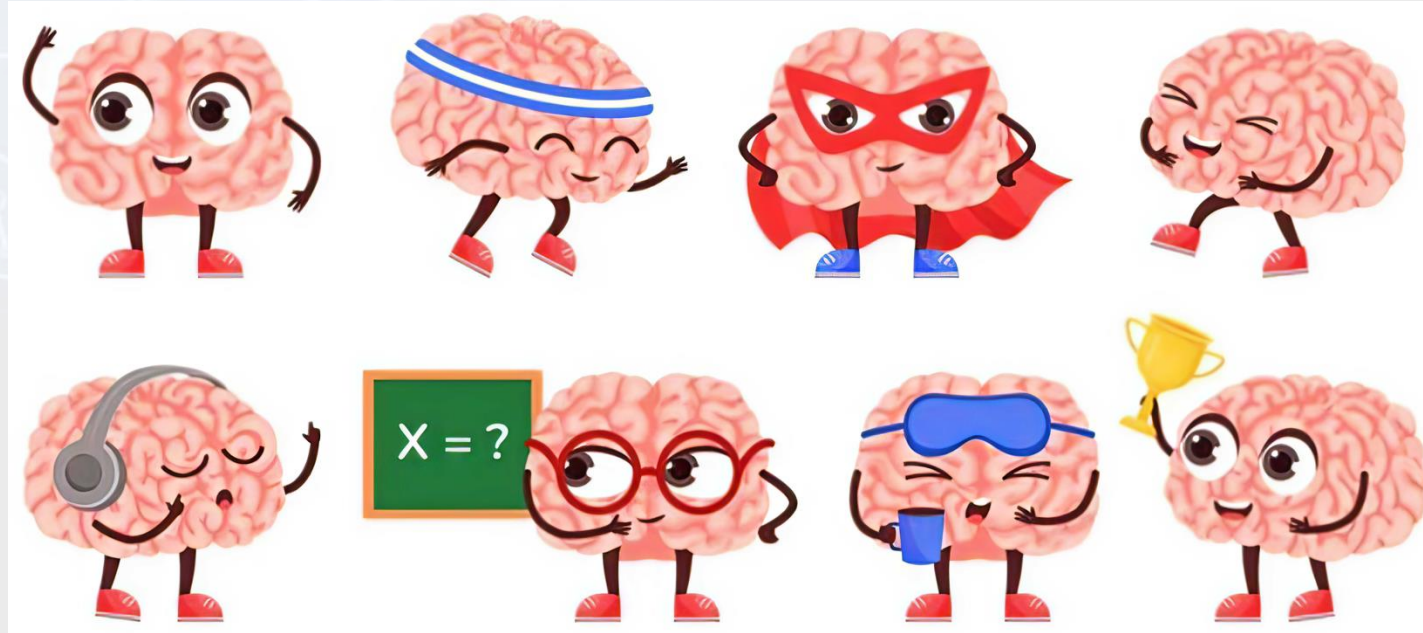
Glaucoma

Uveitis

Papilledema

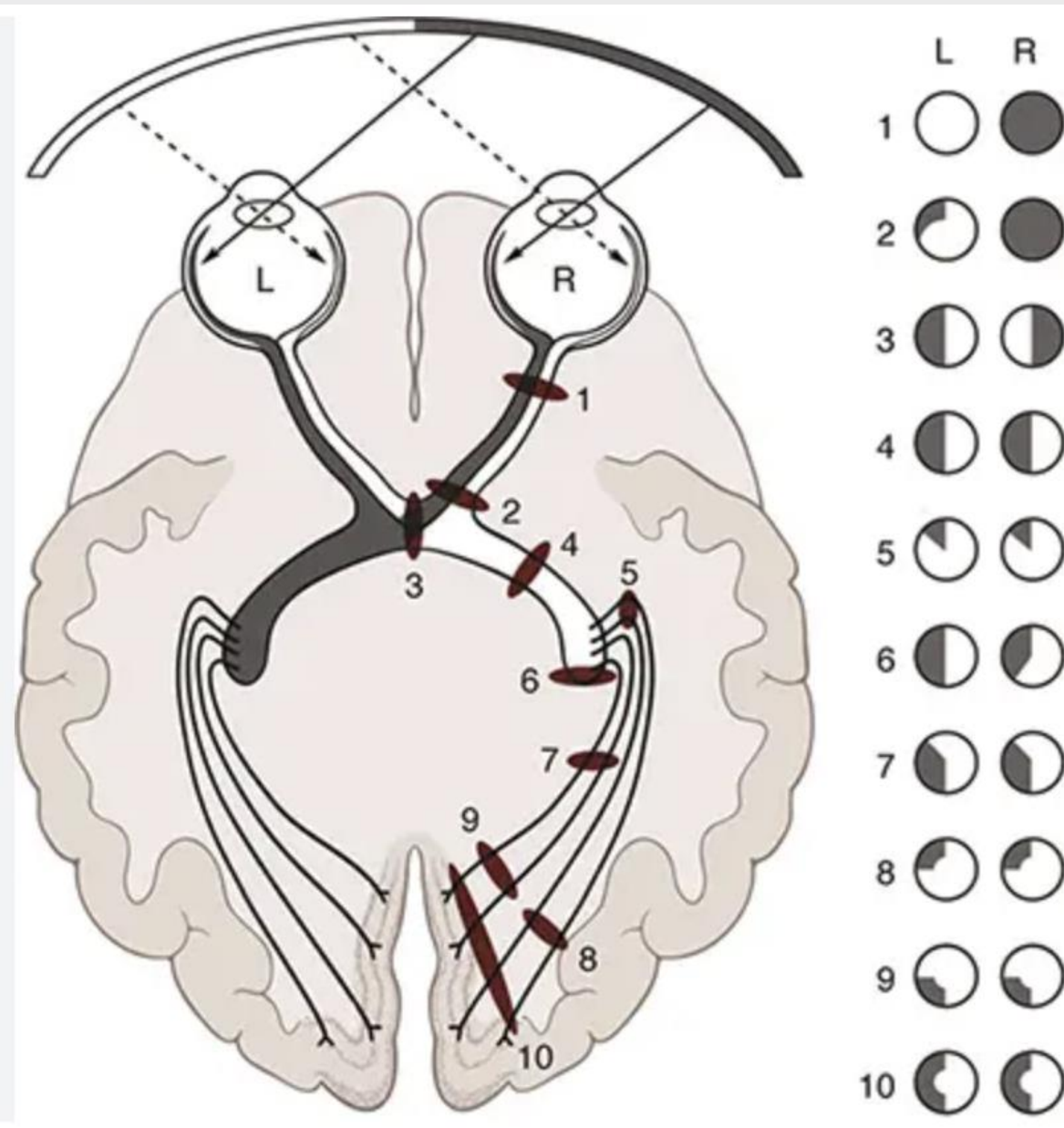
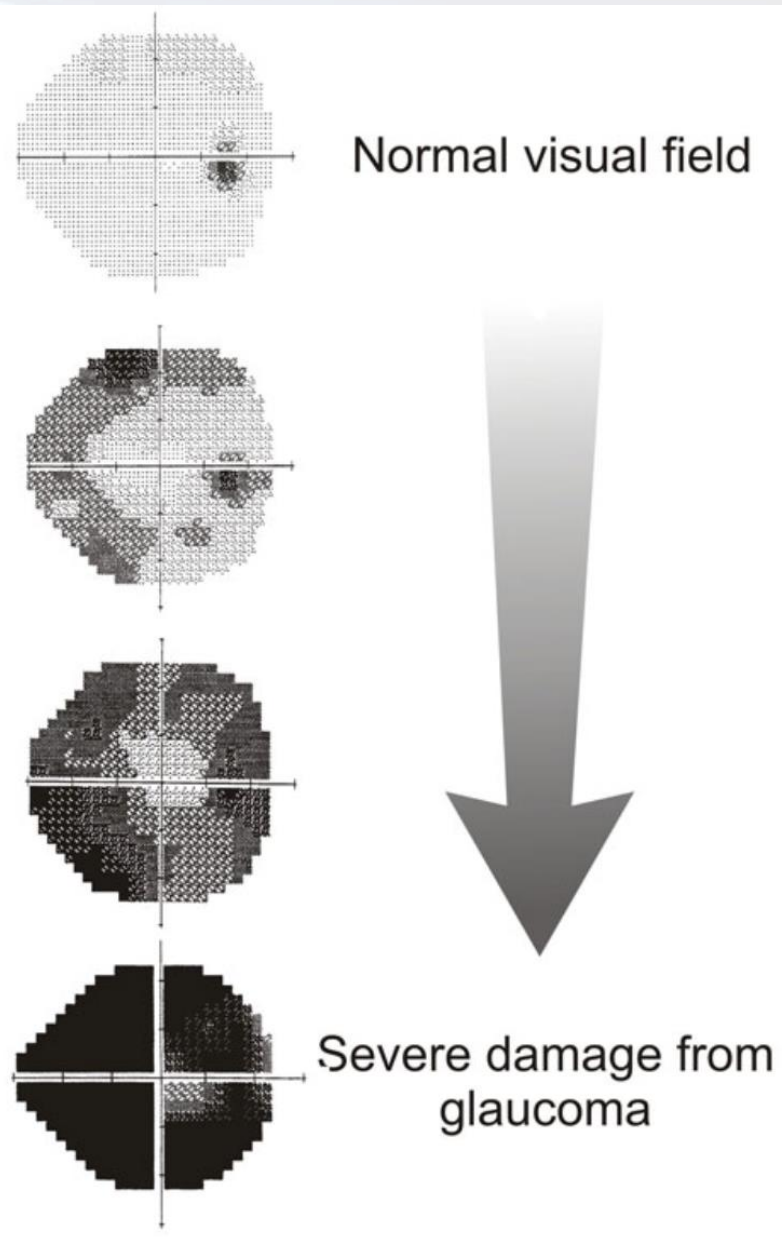
Optic Neuropathy

L'importanza dell'imaging

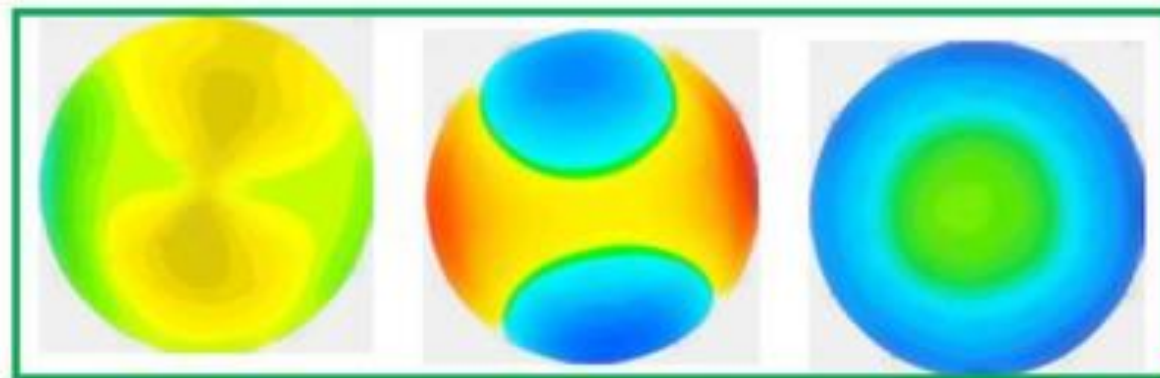


- Analizza e individua differenze significative tra immagini strumentali
- Ottimizza percorso diagnostico
- Facilita il follow up e l'indicazione terapeutica

Neuro-ophthalmology



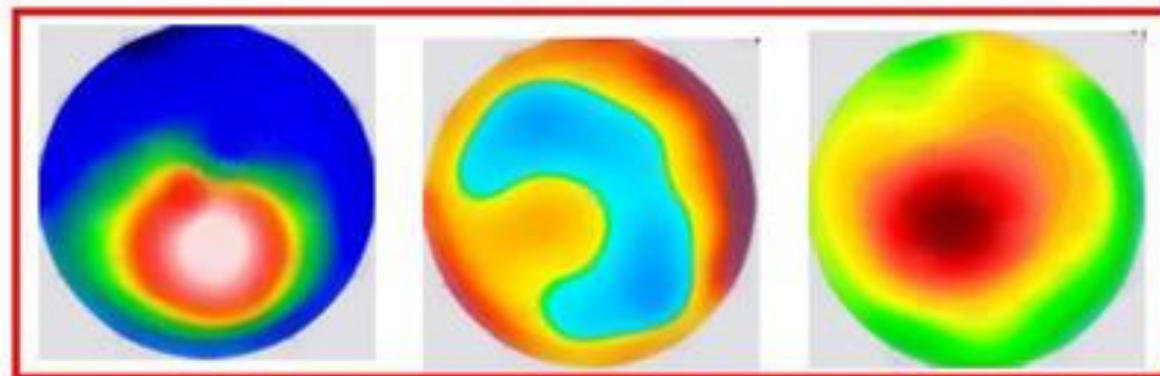
Corneal topography



Normal



Suspect



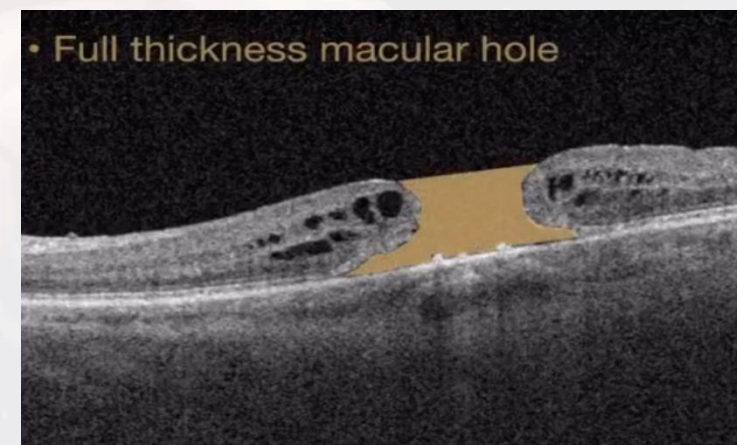
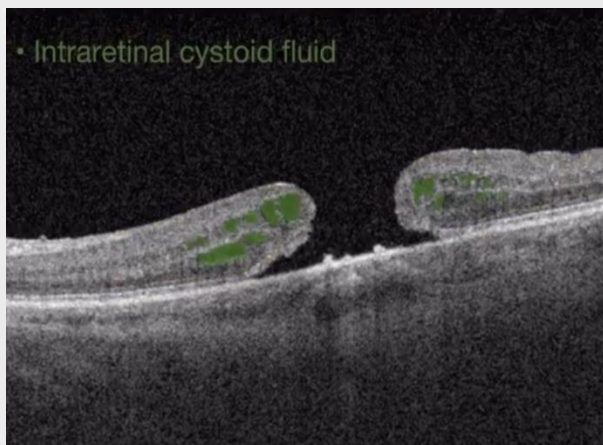
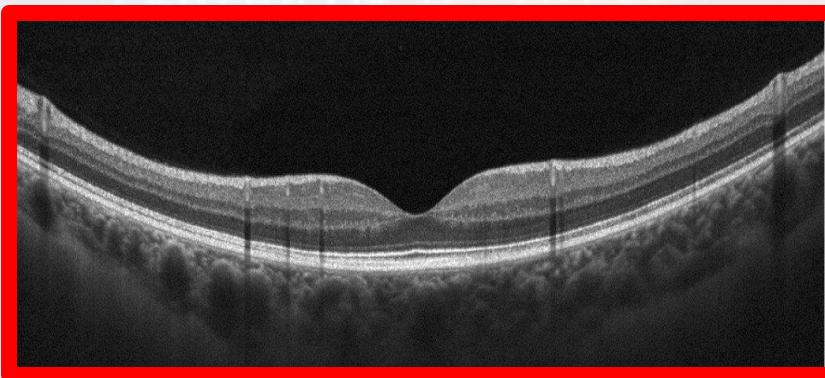
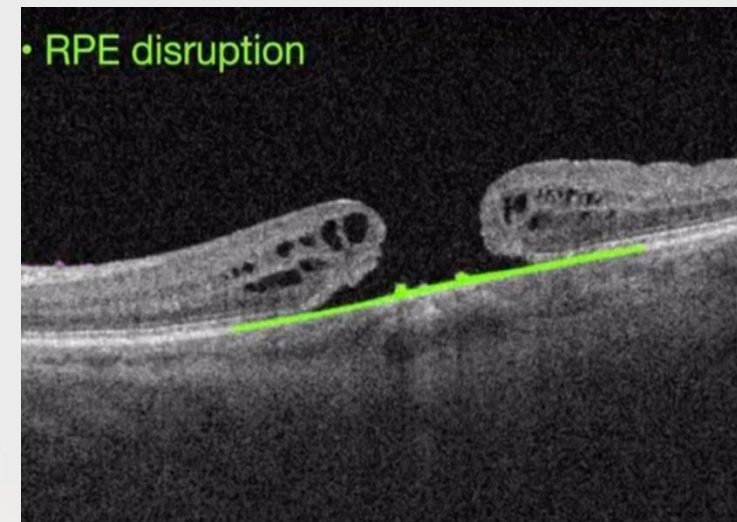
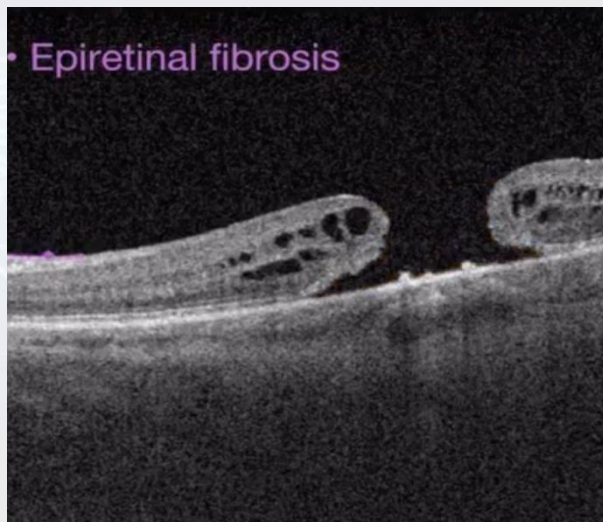
Keratoconus

A-Sagittal

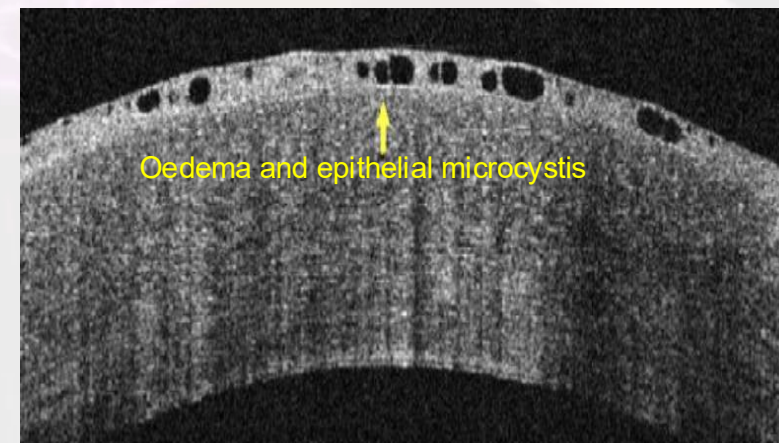
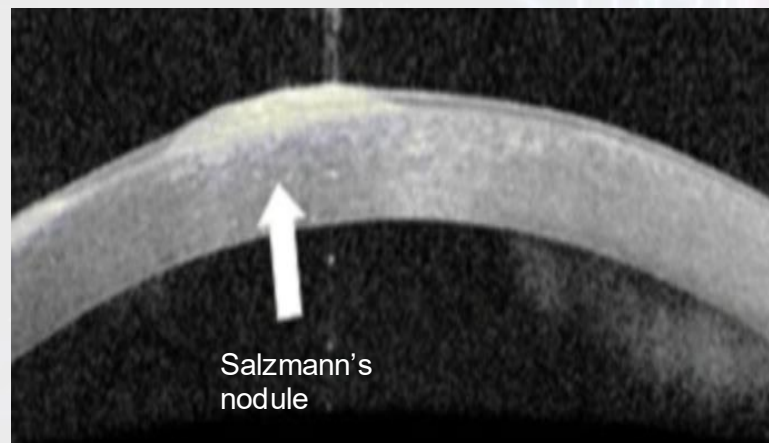
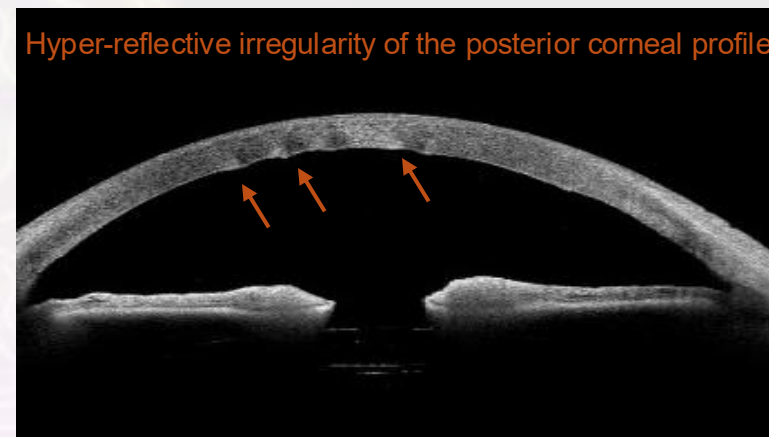
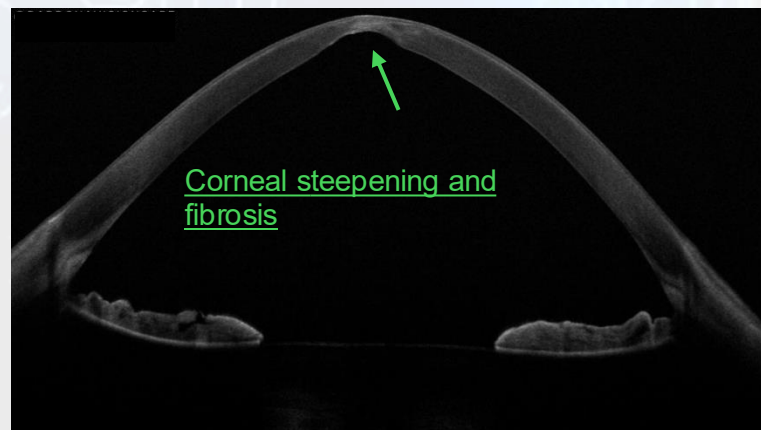
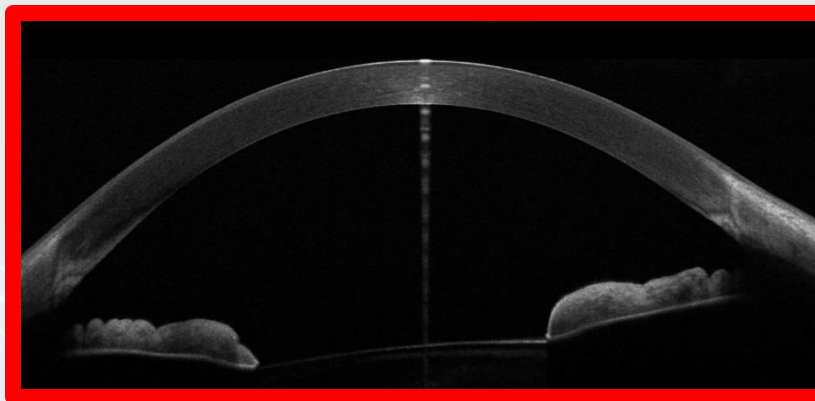
B-Elevation
Front

C- Corneal
Pachymetry

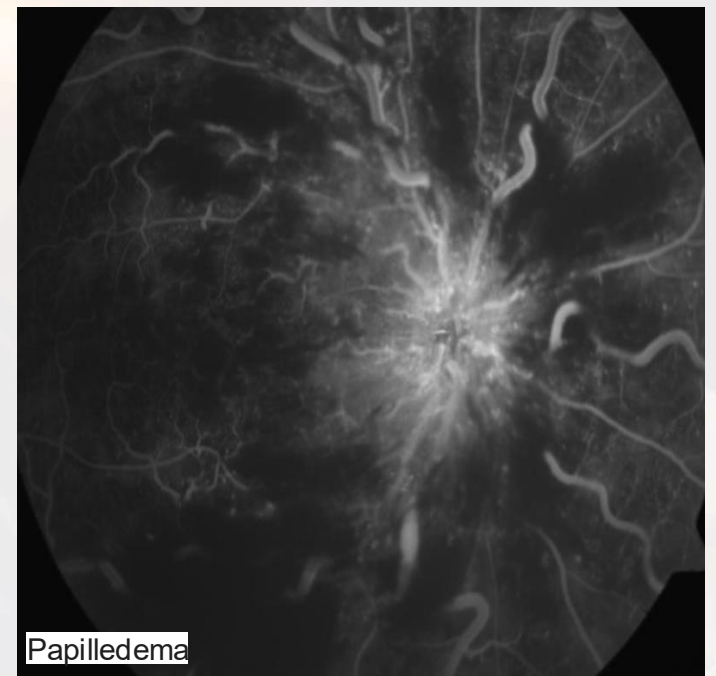
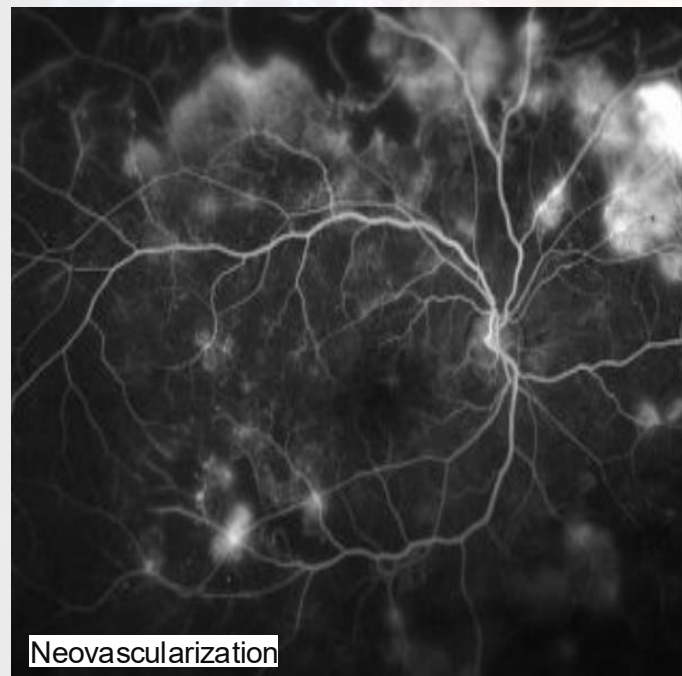
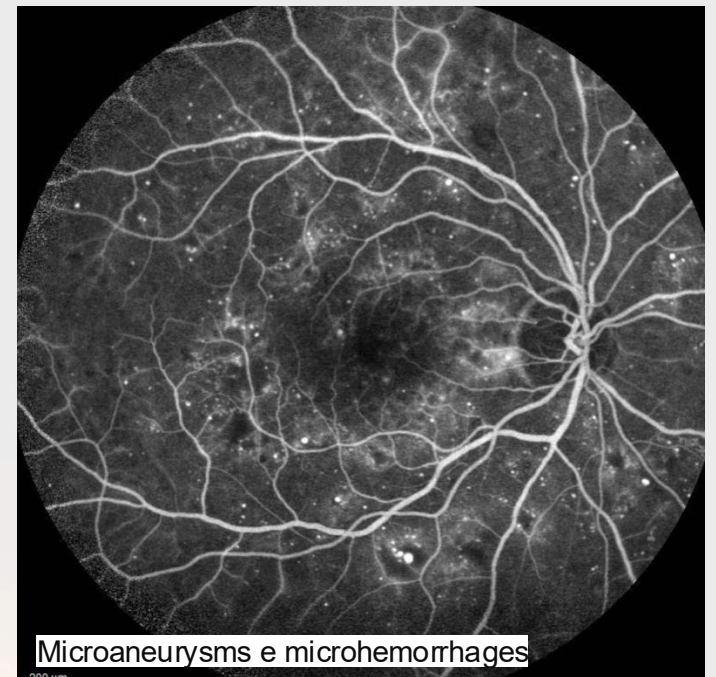
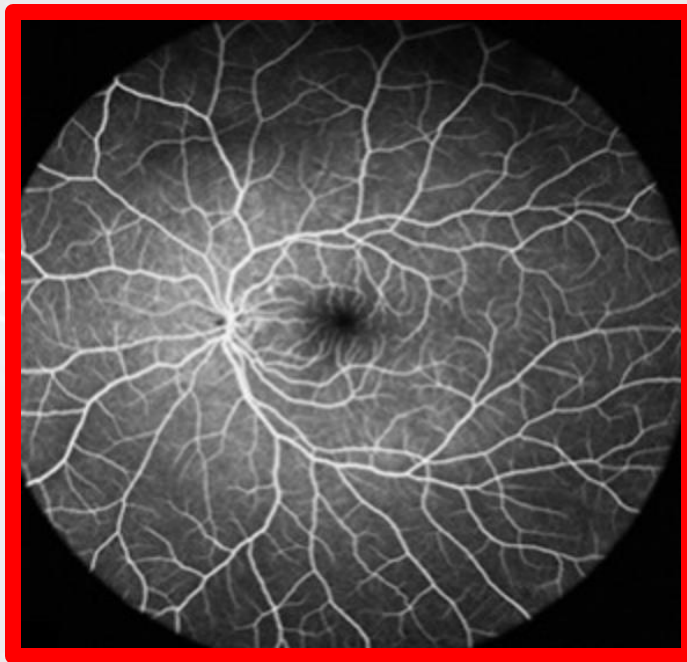
Retinal tomography



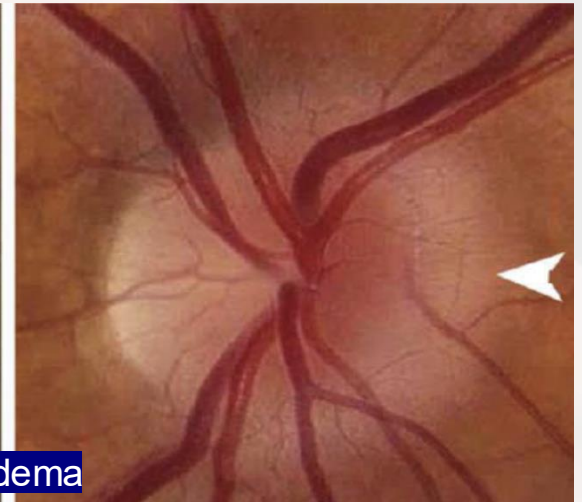
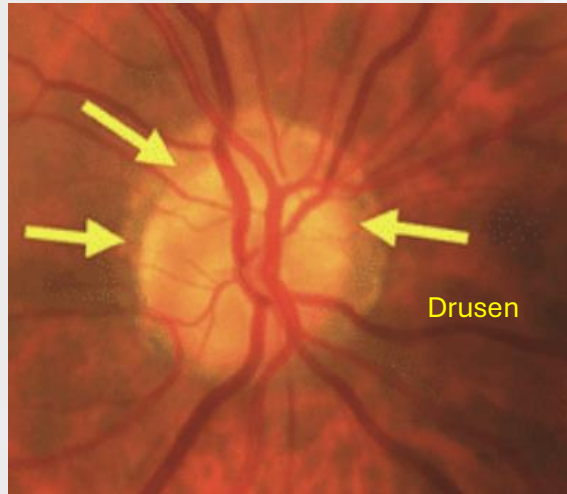
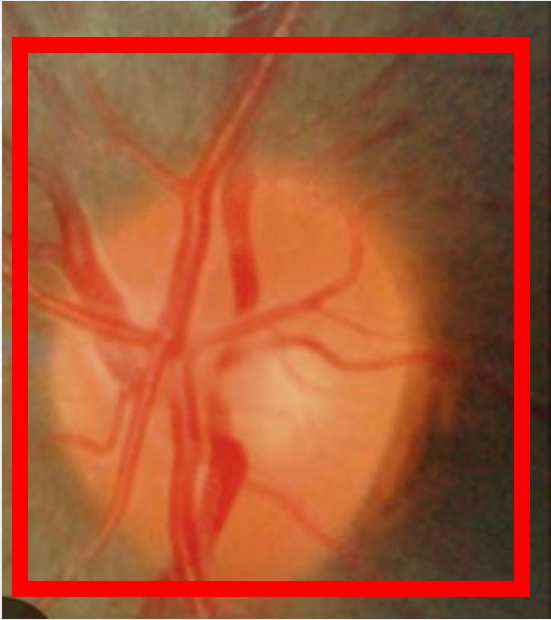
Corneal tomography



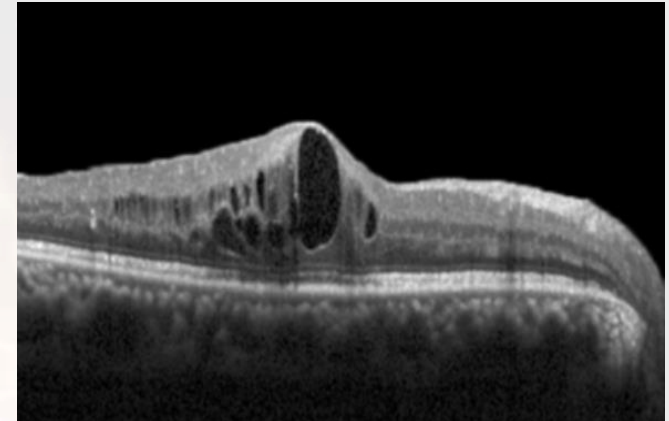
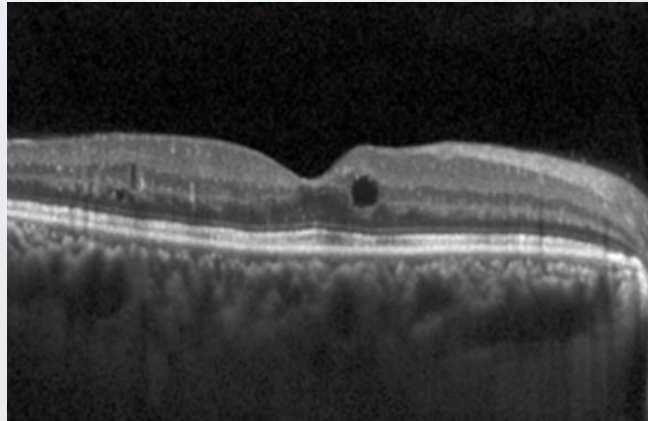
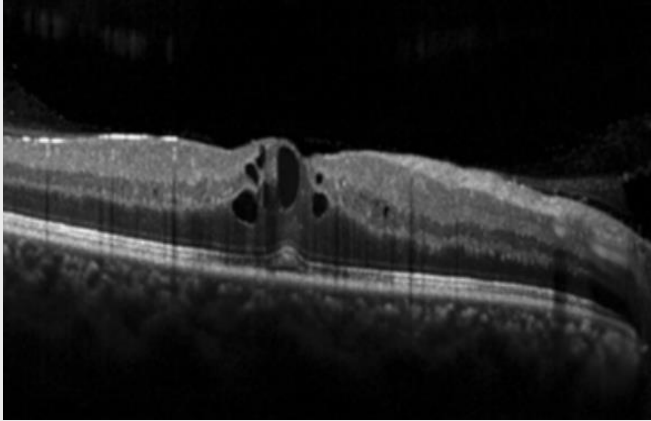
Retinography



Optic Nerve



L'importanza dell'imaging per il follow up



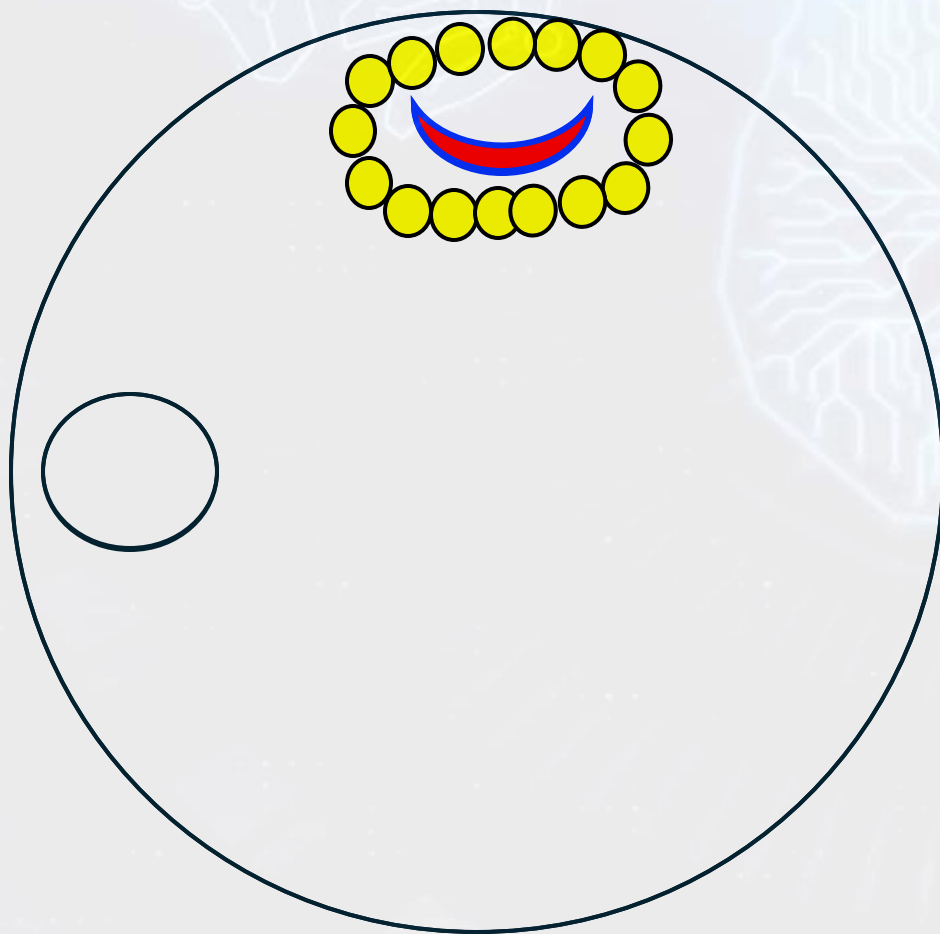
CONJUNCTIVA

		Normal	Abnormal				0 - Normal	1 - Trace	2 - Mild	3 - Moderate	4 - Severe
HYPEREMIA/INFLAMMATION		Absent	Present	IF PRESENT	Monolateral		bulbar redness				
					Bilateral						
					Diffuse						
	CHEMOSIS		Normal	Abnormal	IF PRESENT	Palpebral	palpebral conjunctival redness				
			Absent	Present		Superior					
						Inferior					
						Temporal					
						Nasal					
						Bulbar					
PAPILLAE						Superior					
						Inferior					
						Temporal					
						Nasal					
						Limbal					
						Superior					
						Inferior					
						Temporal					
						Nasal					
	LID PARALLEL CONJUNCTIVAL FOLDS (LIPCOF)		Normal	Abnormal	IF PRESENT	GRADING					
			Absent	Present		Temporal					
						Nasal					
FOLLICLES											
	ULCER		Normal	Abnormal	IF PRESENT	Bulbar					
			Absent	Present		Superior					
						Inferior					
						Temporal					
						Nasal					
MEMBRANE											
	SCARRING		Normal	Abnormal							
PSEUDOMEMBRANE	Subconjunctival Fibrosis		Absent	Present	--						
	Lower fornix Symblepharon		Absent	<50%	50-100%						
	Upper Fornix Symblepharon		Absent	<50%	50-100%						
	Limitation in motility		None	Ankylo-blepharon	Frozen globe						

Standardizzazione dei dati



**Lesione a ferro di cavallo nella
periferia inferiore ad ore 6 di 1
DP circa**



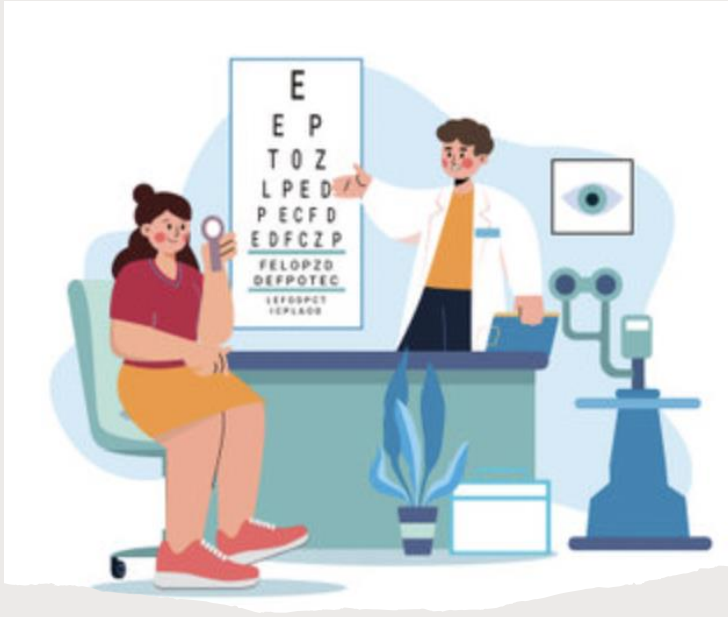
**Barrage laser su
lesione a ferro di cavallo**

Lavoro di squadra

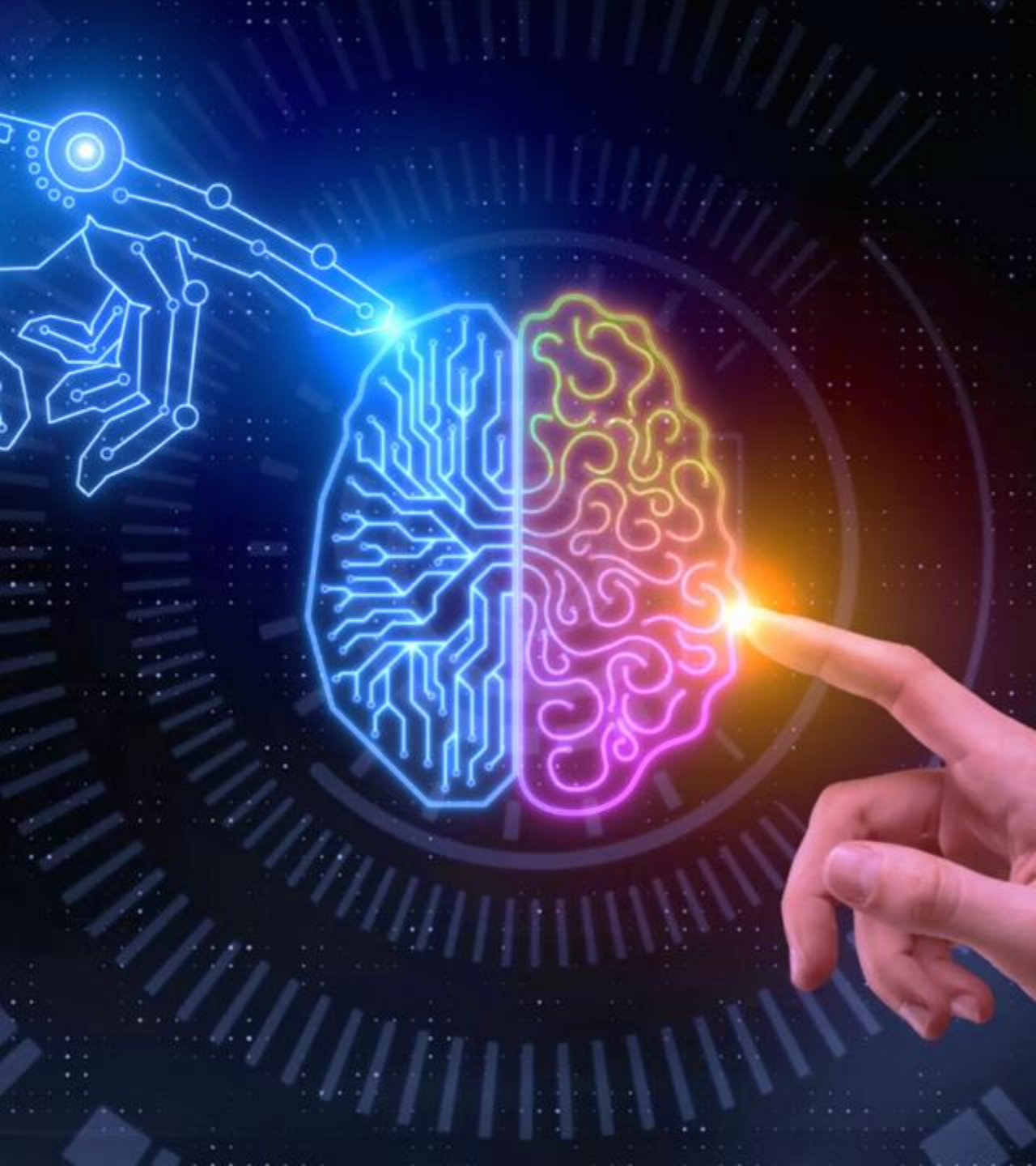


- Registra , archivia e condivide i dati clinici
- Favorisce l'integrazione tra sala operatoria, ambulatorio e reparto

Lavoro di squadra



- DEMOGRAPHICS DATA
- MEDICAL History (social history, family history, general history)
- GENERAL Examination
- **OPHTHALMIC HISTORY** (medications, strumental examination, procedures)
- **LAST ophthalmic examinaton**
- **TODAY ophthalmic examinaton** (symptoms/complain)
- **PLANNED :**
MEDICATIONS STRUMENTAL EXAMINATION, PROCEDURES, VSIT



COSA INTRODUCE DI NUOVO?

- **Pathways diagnostici**
- **Dai sintomi alla diagnosi**
- **L'importanza dell'imaging**
- **Standardizzazione dei dati**
- **Lavoro di squadra**

**GRAZIE PER
L'ATTENZIONE**

