IBD
Definishens

Dr. hadibagheri Hosseini

Gastroentrologist

Risk factors

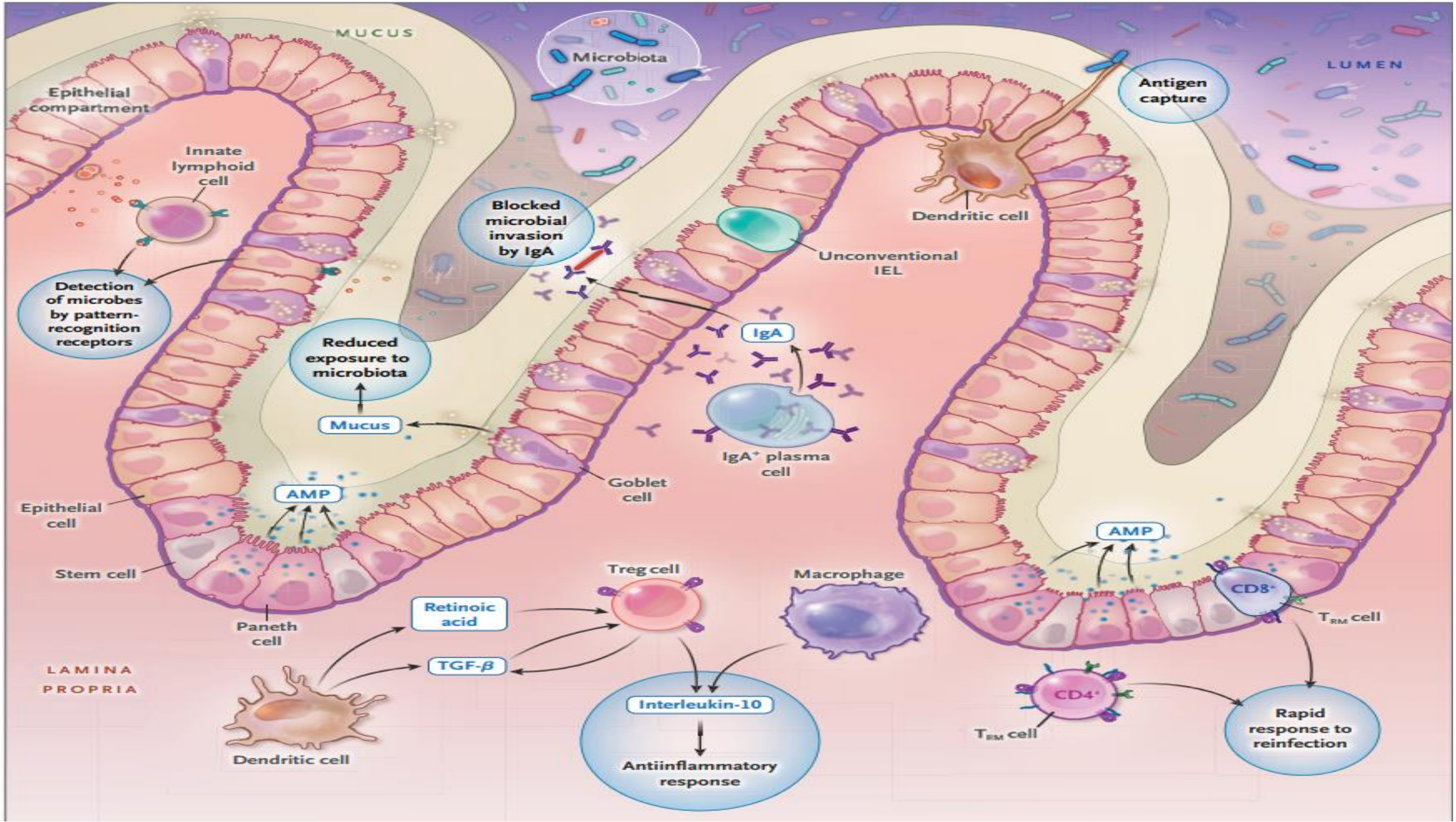
- Genetic risk → only 25% of disease variance
- Breast-feeding to be protective for IBD
- Higher socioeconomic status (Childhood hygiene - Immune responses to the intestinal microbiome)
- Physical activitiy and obesity
- Drug : OCP - NSAIDs (exacerbations of IBD)
- Diet : Increased intake of sugars - Paucity of fresh fruits and vegetables
- Infections and Antibiotic use, particularly in childhood
- Smoking is one of the more notable environmental factors for IBD
- Stress (Depression and anxiety are a common reaction to illness)- sleep duration
- Appendecthomy

Incidence of IBD have been reported based on:

- Sex
- Age
- Geographic variation
- Seasonal variation

THE MUCOSAL IMMUNE SYSTEM

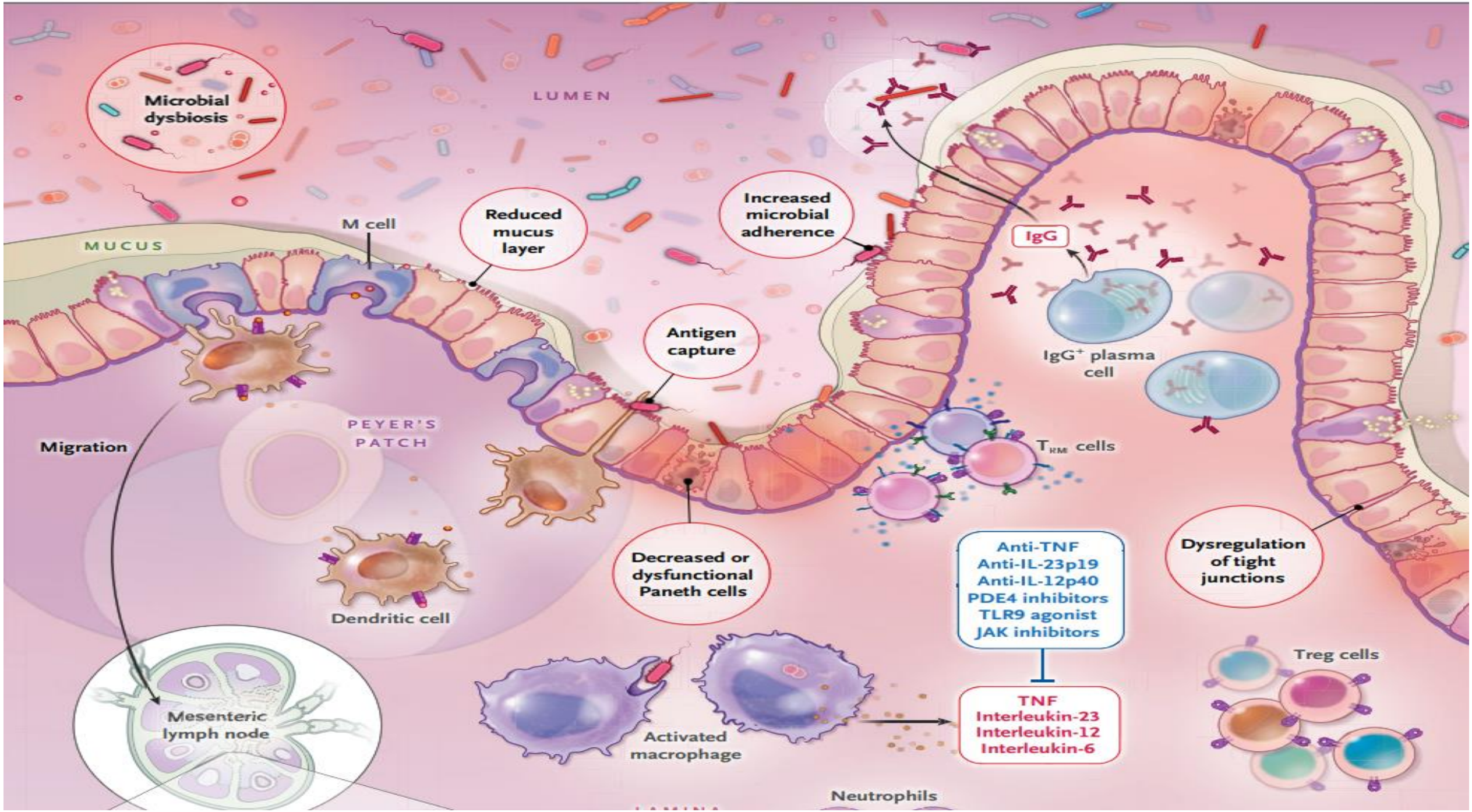
- To protect the host , the intestine relies upon an effective barrier and an innate and an acquired immune system


MUCUS
Microbiota
LUMEN
Epithelial compartment
Innate lymphoid cell
Antigen capture
Blocked microbial invasion by IgA
Dendritic cell
Unconventional IEL
Detection of microbes by pattern-recognition receptors
IgA
Reduced exposure to microbiota
Mucus
IgA+ plasma cell
Goblet cell
Epithelial cell
AMP
Stem cell
Paneth cell
Treg cell
Macrophage
Retinoic acid
TGF-β
LAMINA PROPRIA
Dendritic cell
Interleukin-10
Antiinflammatory response
CD8+
TRM cell
CD4+
TEM cell
Rapid response to reinfection

Microbiota:

- Distal ileum and colon are colonized by trillions of viral, fungal, bacterial, and eukaryotic microbes
- Gut microbes play an essential role in maintaining health by:

1. Metabolizing dietary components such as cellulose
2. Produce energy source for colonic epithelial cells
3. Normal development and functioning of the immune system


Microbial dysbiosis
LUMEN
MUCUS
M cell
Reduced mucus layer
Increased microbial adherence
IgG
IgG+ plasma cell
Antigen capture
PEYER'S PATCH
Migration
TRM cells
Dendritic cell
Decreased or dysfunctional Paneth cells
Anti-TNF
Anti-IL-23p19
Anti-IL-12p40
PDE4 inhibitors
TLR9 agonist
JAK inhibitors
Dysregulation of tight junctions
Mesenteric lymph node
Activated macrophage
TNF
Interleukin-23
Interleukin-12
Interleukin-6
Treg cells
Neutrophils

Typical presentation

Gastrointestinal symptoms:

- Ulcerative colitis (UC):

a. Bloody diarrhea
b. Abdominal pain around bowel movements
c. Tenesmus

- Crohn disease (CD):

a. low-grade abdominal pain
b. weight loss
c. lack of appetite
d. diarrhea with or without blood

Systemic symptoms – (Fever, fatigue)

Ulcerative colitis

Ulcerative colitis

- Relapsing and remitting episodes of inflammation
- Limited to the mucosal layer of the colon
- Almost invariably involves the rectum, and may extend in a proximal and continuous fashion
- Usually onset is gradual → progressive over several weeks
- A self-limited episode of rectal bleeding that occurred weeks or months earlier

Symptoms of Colitis

Usually present with diarrhea, which **may be** associated with blood

Associated symptoms include:

- Colicky abdominal pain
- Urgency
- Tenesmus
- Incontinence
- Patients with mainly distal disease may have constipation accompanied by frequent discharge of blood and mucus

The severity of symptoms:

Mild disease:

- 4 ≤ stools per day with or without blood
- Normal physical exam
- Periods of constipation are also common

Severe disease :

- 10≥ stools per day with severe cramps and continuous bleeding
- SIRS
- May have rapid weight loss

Diagnosis of UC

The diagnosis of ulcerative colitis is based on the presence of :

- 1. Chronic diarrhea > 4 weeks
- 2. Active inflammation on endoscopy
- 3. Chronic changes on biopsy
- 4. Exclusion of other causes

DIFFERENTIAL DIAGNOSIS of UC

- Crohn disease
- Infectious colitis
- Radiation colitis
- Diversion colitis
- Solitary rectal ulcer syndrome
- Graft versus host disease
- Diverticular colitis
- Medication-associated colitis NSAIDs, mycophenolate, and gold.
- Other disorders – common variable immunodeficiency (CVID)

complication of UC:

Acute:

- Severe bleeding
- Fulminant colitis and toxic megacolon (colonic diameter ≥6 cm)
- Perforation

Chronic:

- Stricture
- Dysplasia or colorectal cancer

Crohn disease

Most commonly involves the ileum and proximal colon; however, any part of the gastrointestinal tract may be affected.

Transmural inflammation and by skip areas of involvement:

- Fibrosis → strictures →obstruction
- Sinus tracts →microperforations or fistula formation.

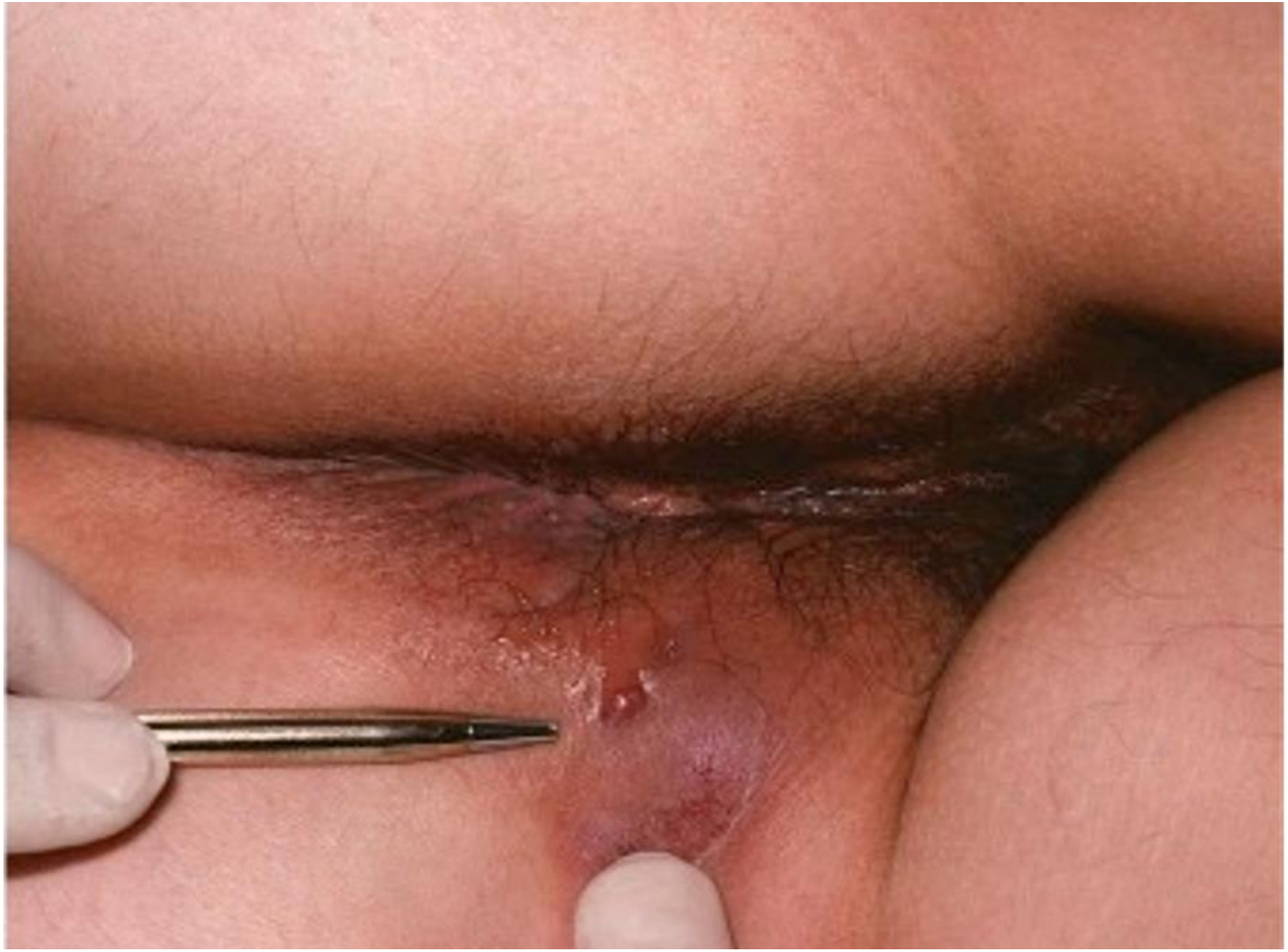
Clinical Presentation of Crohn's disease :

Diarrhea (medications used to treat Crohn's disease can exacerbate diarrhea.)
Nevertheless, proctitis may be the initial presentation in some cases, especially in older individuals
Abdominal Pain (mimicking appendicitis)
Weight Loss and Malnutrition (poor oral intake Anorexia, nausea, and vomiting drugs) weakness, irritability, malaise, and easy fatigability , infection
Fever (active Crohn's disease low grade fever without superimposed illness or even abscess formation.)
Anemia
Musculoskeletal (Clubbing , pauciarticular arthropathy, Polyarticular arthropathy(waxing and waning joint pain and stiffness in association with flares of intestinal disease) Metabolic bone disease
Mucocutaneous (pyoderma gangrenosum , erythema nodosum.,Aphthous ulcers of the mouth)
Ocular (Episcleritis , Scleritis , Uveitis (headache, deep eye pain, lacrimation, blurred vision, and photophobia)
Hepatobiliary (Gallstones , Asymptomatic and mild elevations of liver biochemical tests, PSC)
Renal and Genitourinary (uric acid and oxalate stones, membranous nephropathy, glomerulonephritis)
Vascular (venous thromboembolism or, much less commonly, arterial thrombosis)

Perianal disease:

- Skin lesions (maceration, superficial ulcers, abscesses, and skin tags)
- Anal canal lesions (fissures, ulcers, and stenosis)
- Perianal fistulas

Prianal fistulla



Unusual Presentations of crohn

- Gastroduodenal Crohn's disease manifests as Hp-negative peptic ulcer disease, with dyspepsia or epigastric pain
- Esophageal Crohn's disease :dysphagia, odynophagia, substernal chest pain, and heartburn
- Aphthous ulcers sometimes are found in the mouth
- Frank malabsorption and steatorrhea
- Acute appendicitis and occasionally periappendiceal abscess

Extraintestinal manifestation

- Hepatobiliary: PSC- fatty liver- autoimmune liver disease
- Musculoskletal: arteritis-osteoporosis- osteopenia- osteonecrosis
- Hematopoietic: venous and arterial thromboembolism- hemolytic anemia
- Pulmonary: Airway inflammation-Parenchymal lung disease- Serositis

Extraintestinal manifestation

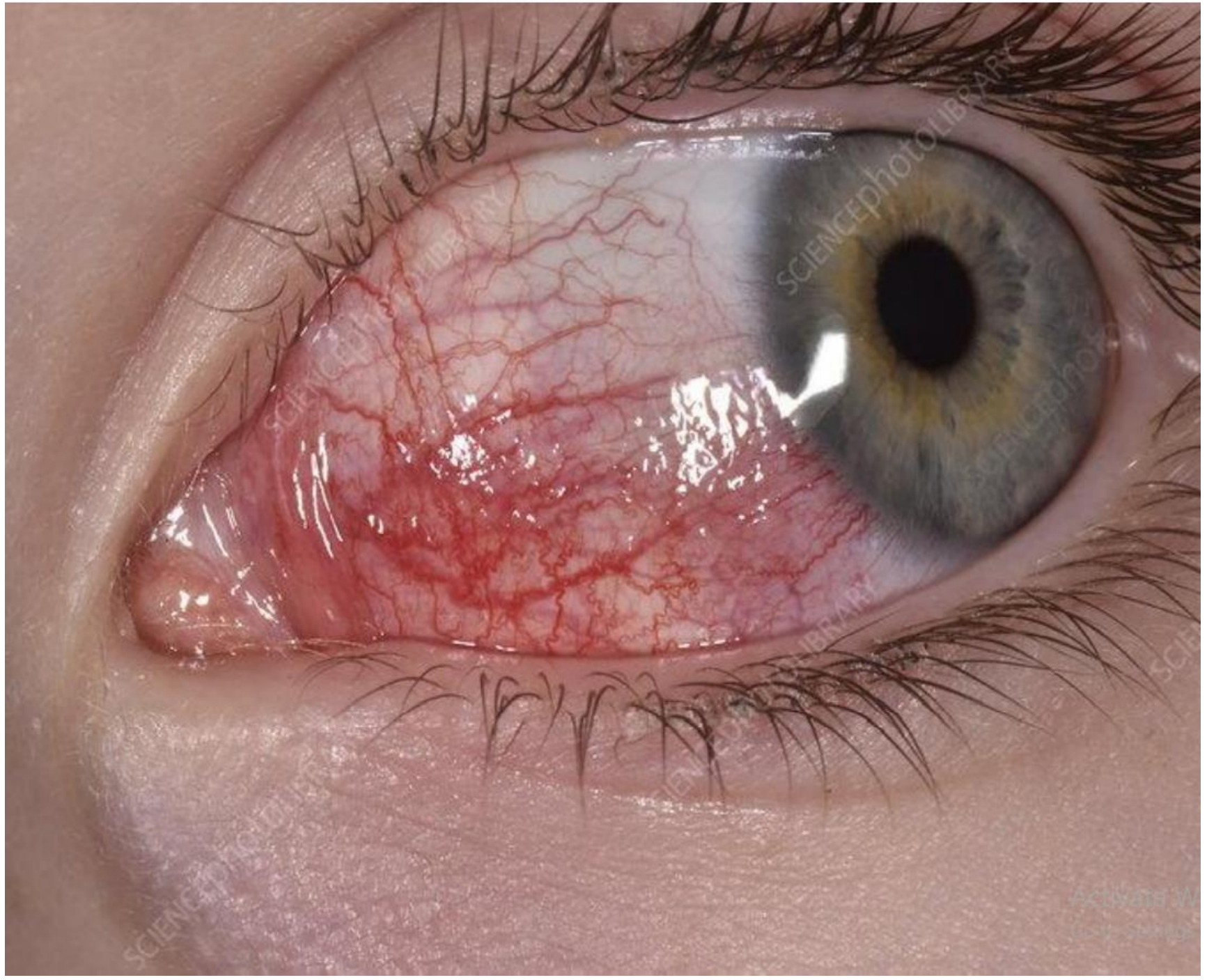
- Data suggest that 6 to 40 percent of patients with IBD have one or more extraintestinal manifestation
- Up to **15 percent** of patients have a cutaneous manifestation of IBD
- **Ocular** manifestations of IBD occur in **4 to 10 percent** of patients and may be more likely to occur in patients with **Crohn** disease as compared with ulcerative colitis

Pathogenesis of extraintestinal manifestations in patients with IBD:

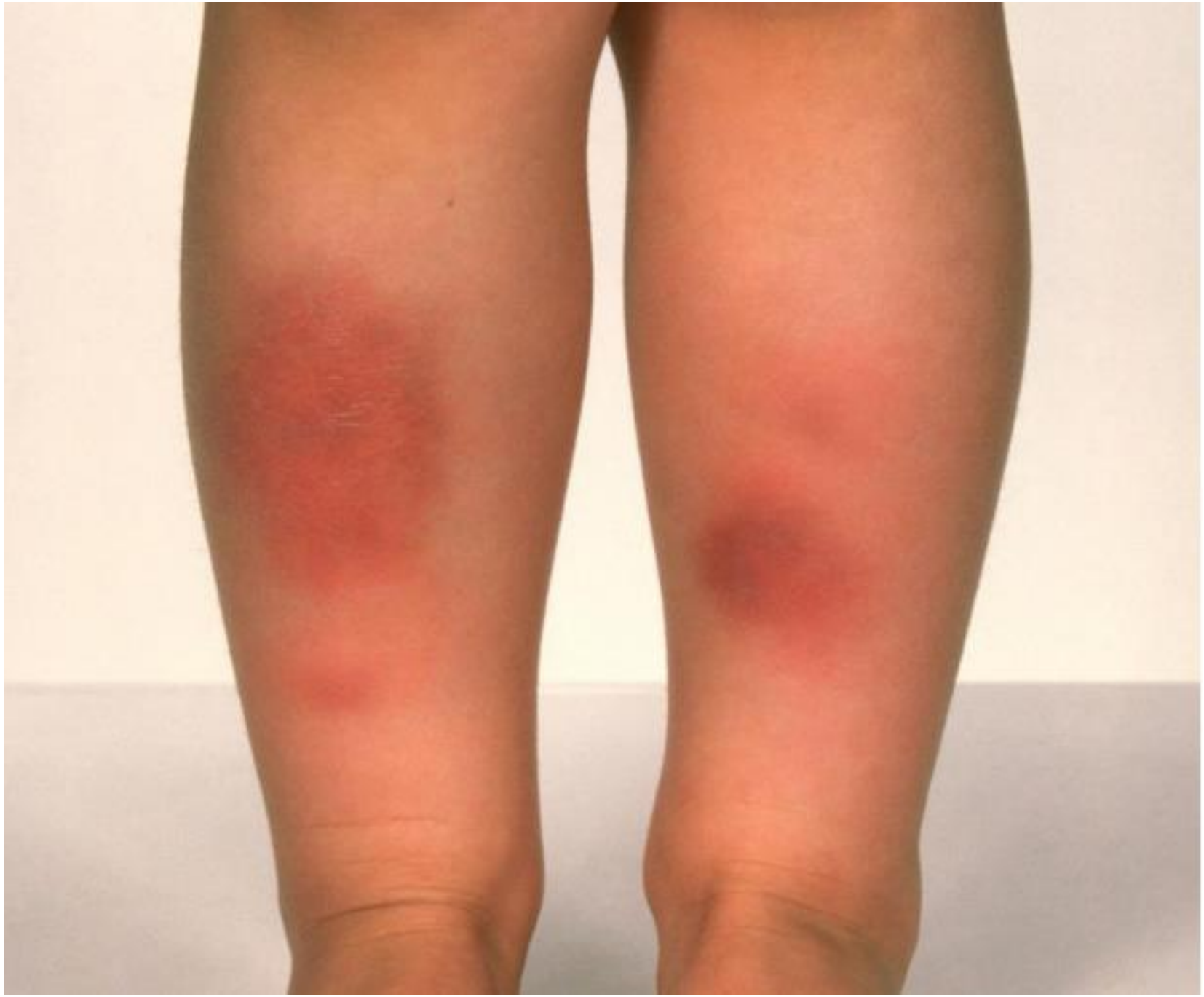
- Incompletely understood
- Triggers of the immune response in certain organs may be influenced by genetic factors:

HLA-B27 and HLA-B58 are associated with ocular inflammation

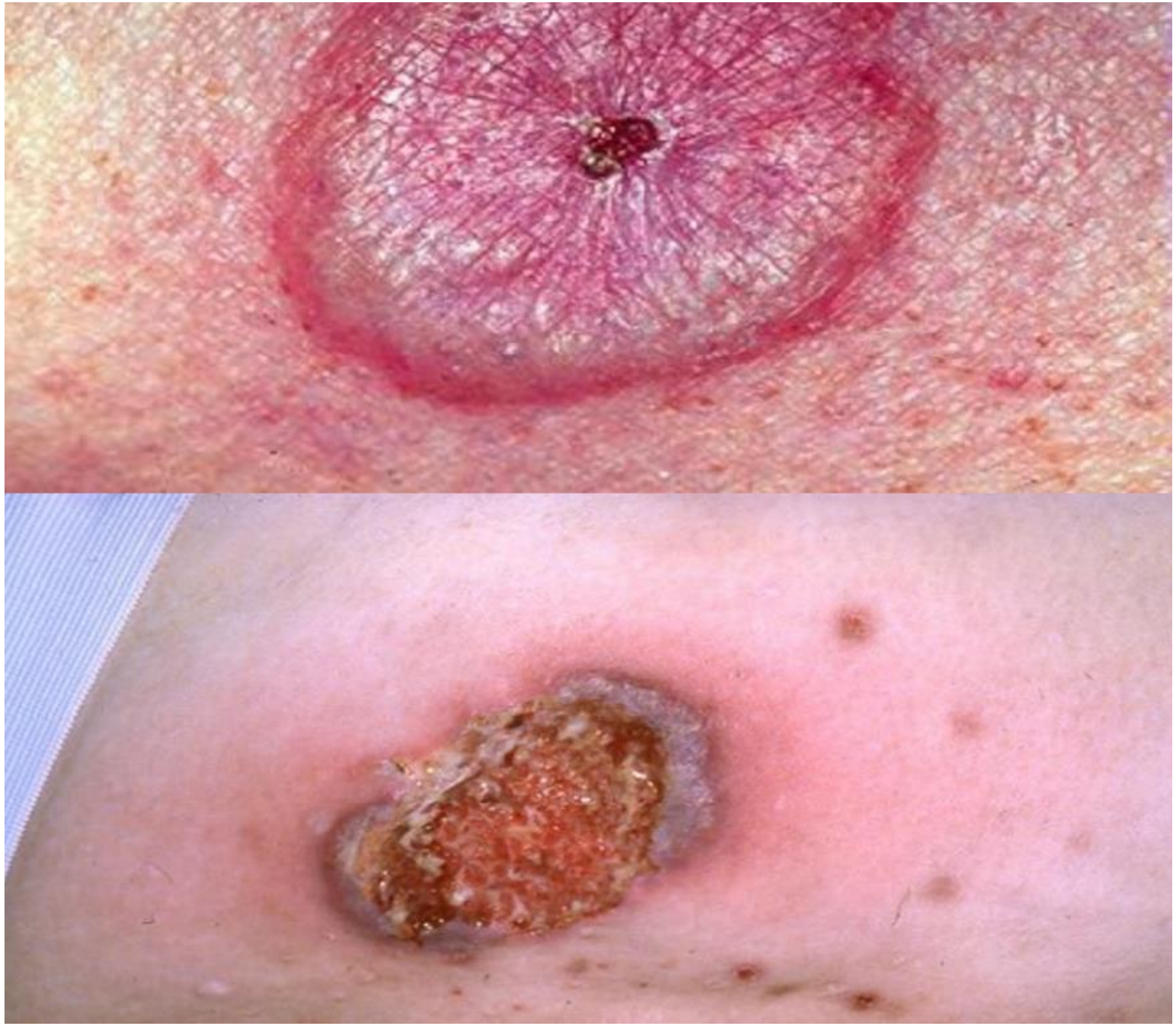
Episcleritis



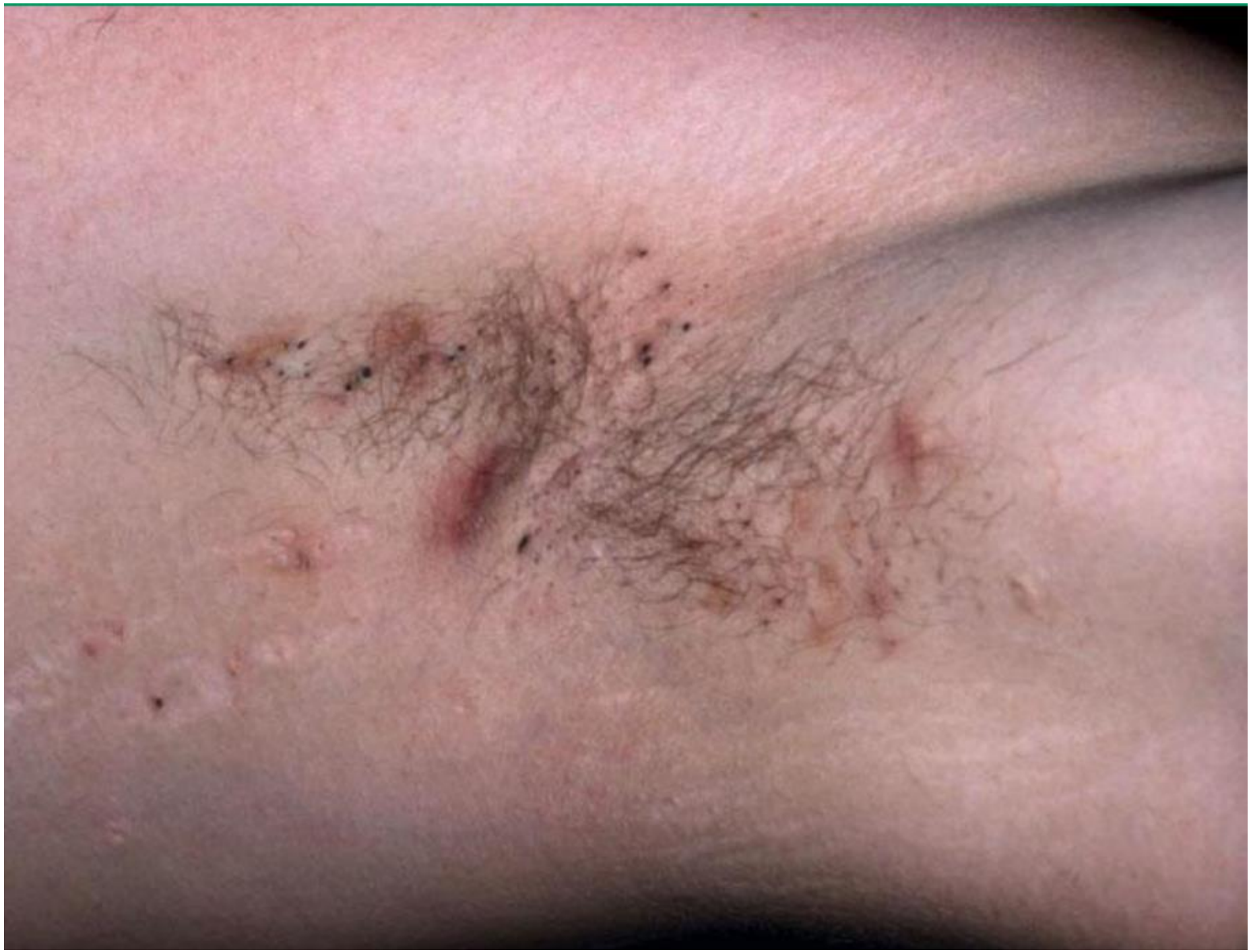
Erythema nodusom



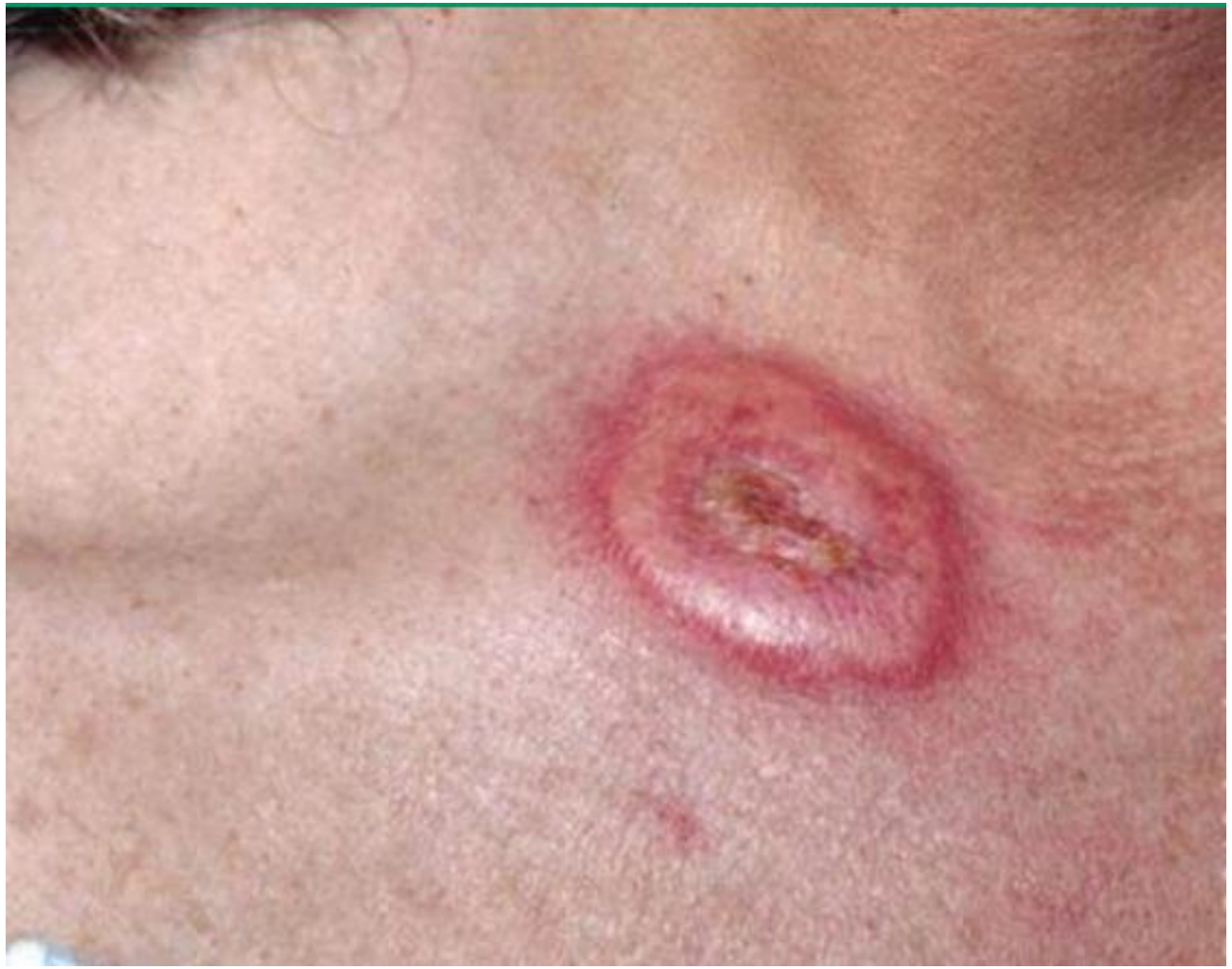
pyoderma gangrenosum



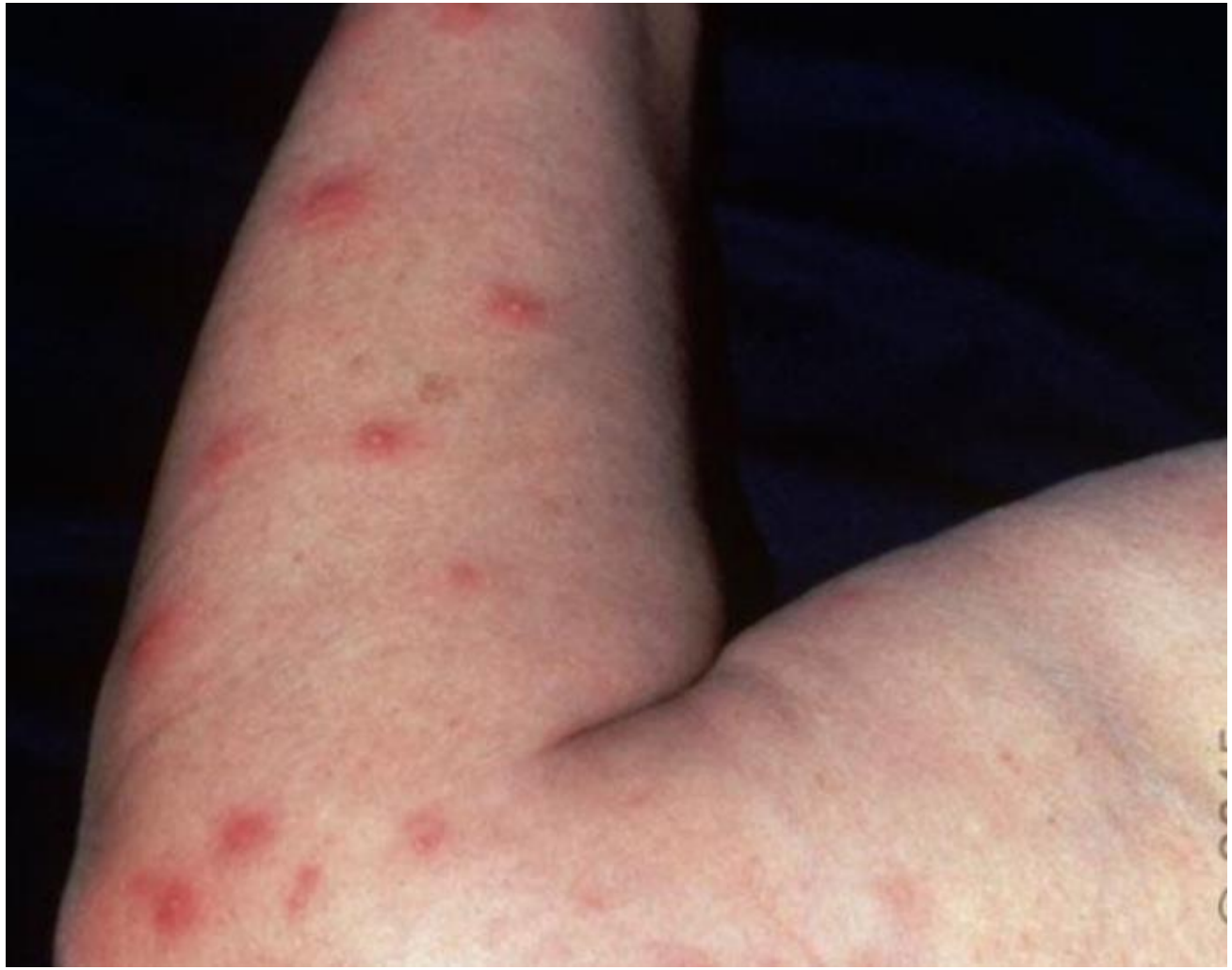
Hidradenitis suppurativa



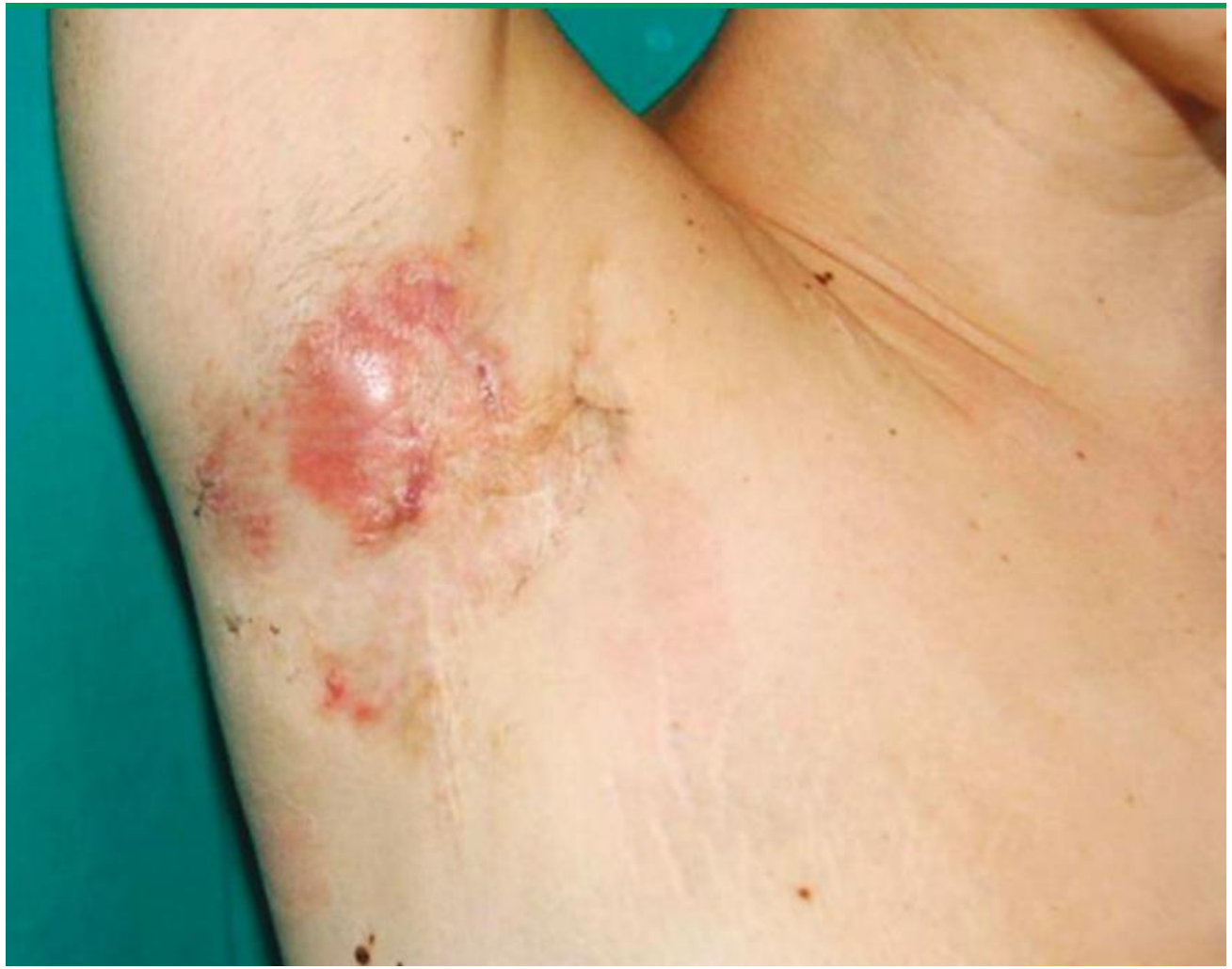
Sweet syndrom



Bowel-associated dermatosis-arthritis syndrome



Metastatic crohn



Psoriasis vulgaris