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# **AN OVERVIEW OF CARCINOID SYNDROME**

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# **AN OVERVIEW OF CARCINOID SYNDROME**

# CARCINOID SYNDROME (CS): WHAT IS IT?

- Paraneoplastic syndrome
- Peptides release (i.e. serotonin, histamine, kallikrein)
- Neuroendocrine tumours
- Liver metastases

# CLINICAL FEATURES

## GI NETs (67%)



- 38% midgut (mostly ileal NETs)
- Multifocal: 30% of cases
- Age: 60-70
- **Typical CS (95%)**

## THORACIC NETS (25%)

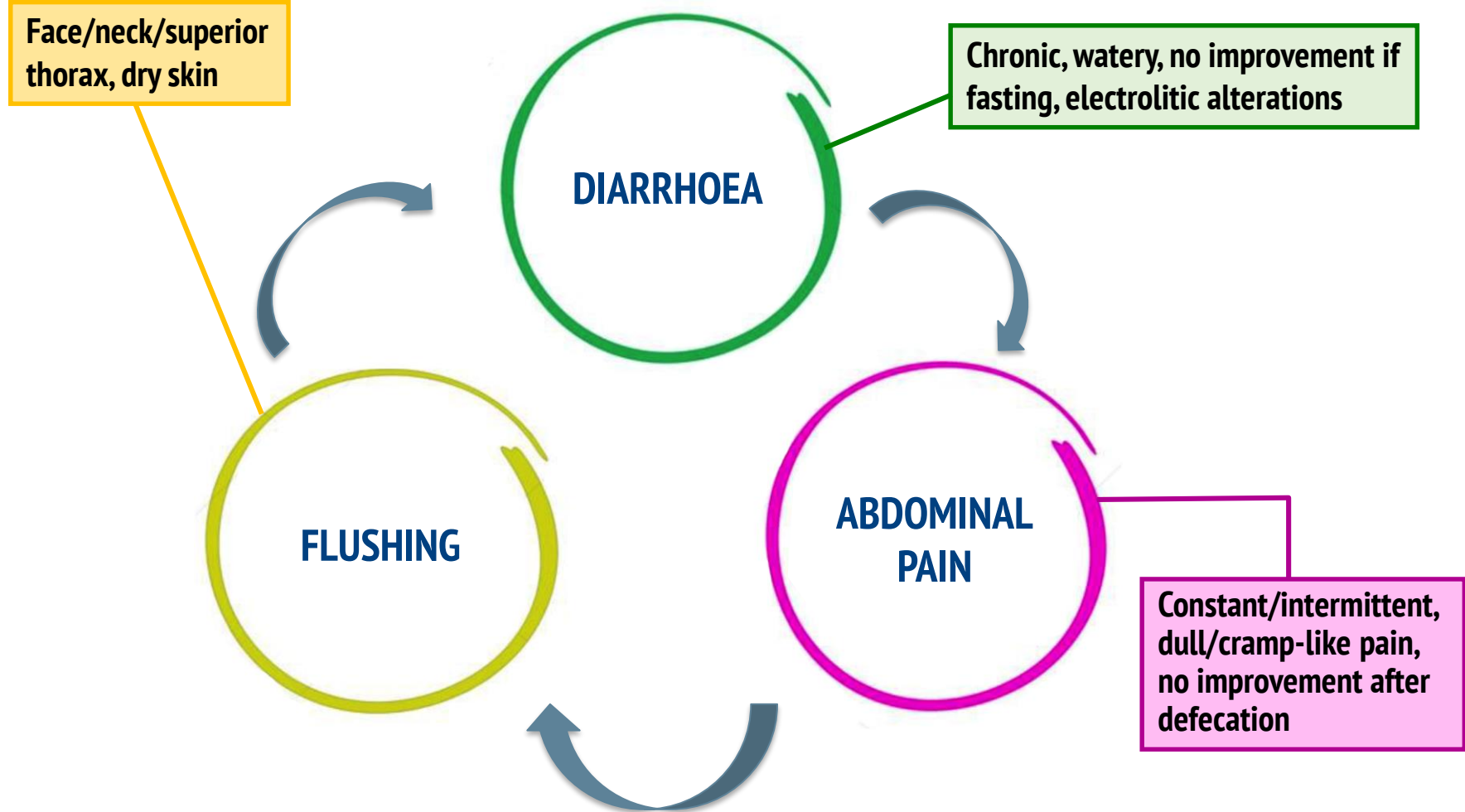


- Mostly: typical bronchial carcinoid
- Age: 50's
- **Atypical CS (5%)**

CS, carcinoid syndrome; GI, gastrointestinal; NET, neuroendocrine tumour

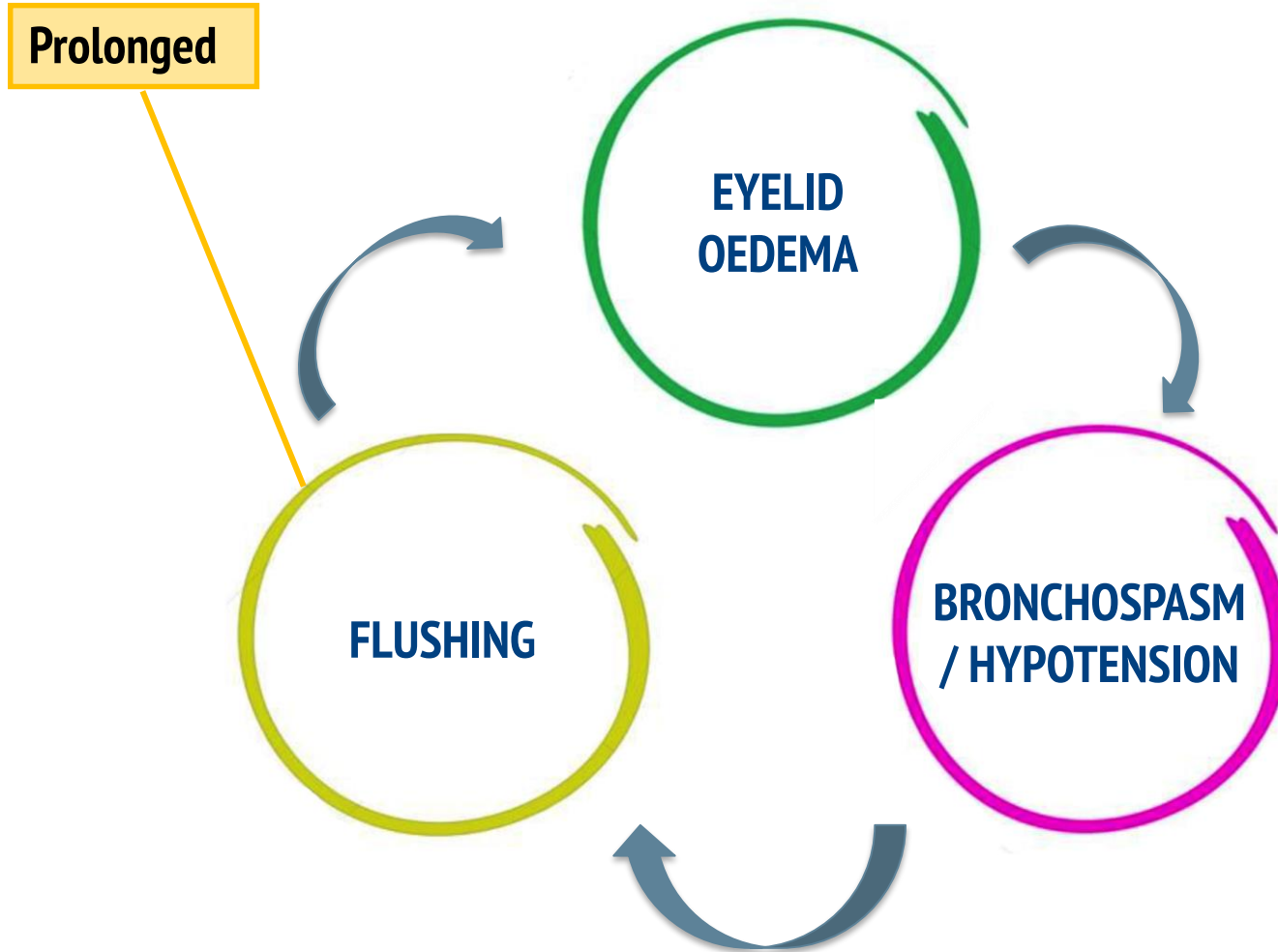
- **TYPICAL** CARCINOID SYNDROME
- **ATYPICAL** CARCINOID SYNDROME

# TYPICAL CARCINOID SYNDROME

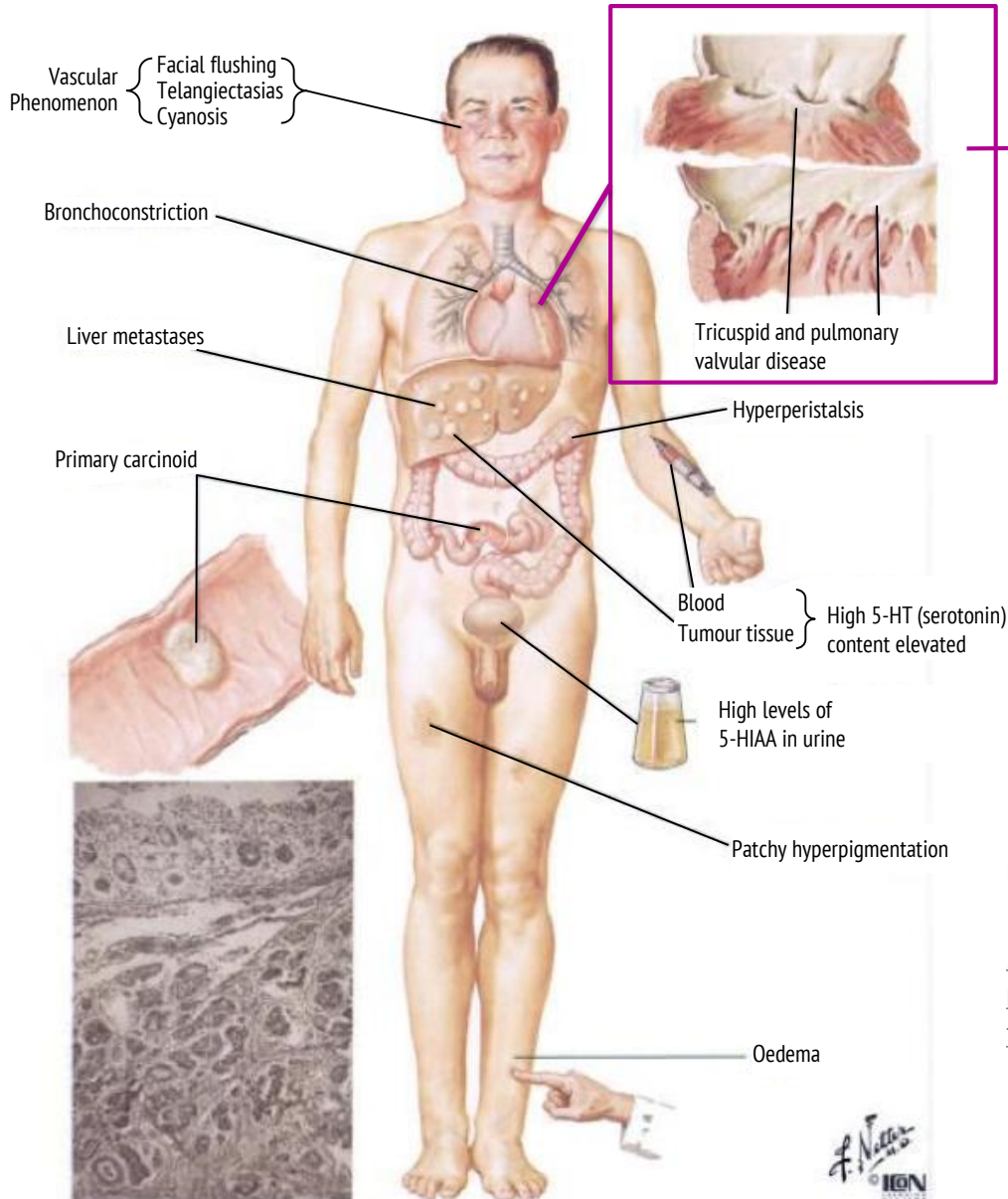




# ATYPICAL CARCINOID SYNDROME



# CARCINOID CARDIOPATHY



- 10-20 % at NET diagnosis
- Cardiac right valve fibrosis
- Right cardiac failure
- 50% death

NET, neuroendocrine tumour

1. Anthony LB. Semin Oncol 2013; 40 (1): 45-55;

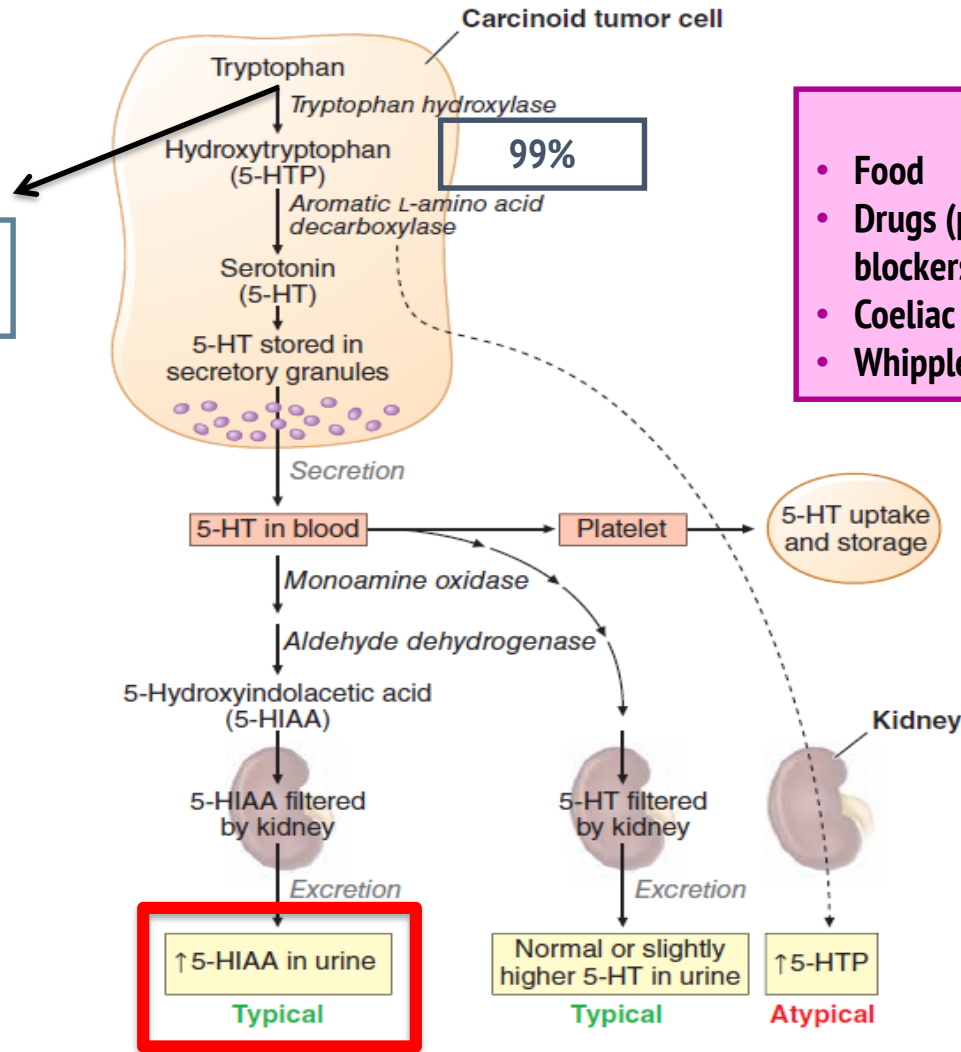
2. <https://www.netterimages.com/carcinoid-syndrome-and-neuroendocrine-tumors-labeled-multiple-publications-gastroenterology-frank-h-netter-6725.html>. Accessed 10th May 2019



# CARCINOID SYNDROME: DIAGNOSIS

## MIDGUT NETs

Nicotinic acid (1%)



**FALSE POSITIVE**

- Food
- Drugs (paracetamol, 5-Fu, beta-blockers, NSAIDs, benzodiazepine)
- Coeliac disease
- Whipple disease

## FOREGUT NETs

NET, neuroendocrine tumours; NSAIDs, non-steroid anti-inflammatory drug; 5-Fu, Fluorouracil; 5-HIAA, 5-hydroxyindoleacetic acid; 5-HTP, 5-Hydroxytryptophan

Figure reproduced from: Harrison's Principles of Internal Medicine, 19<sup>th</sup> Edition. Accessed via [www.accessmedicine.com](http://www.accessmedicine.com)

# CARCINOID CRISIS



- **Life Threatening**
- **Oncological Emergency**

- **Anaesthesia**
- **Interventional procedures**
- **Drugs**
- **Alcohol, foods, physical/psychological stress, infections**

- **Hypotension (rarely hypertension), tachycardia, dyspnoea & central nervous system symptoms**

# THERAPEUTIC OPTIONS

- LDT
- Surgery
- IFN
- Somatostatin analogs
- PRRT
- Telotristat ethyl\*

\*Telotristat ethyl is indicated for the treatment of CS diarrhea in combination with SSA therapy in adults inadequately controlled by SSA therapy

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IFN, interferon LDT, liver directed therapies; PRRT, peptide receptor radionuclide therapy

# CONCLUSIONS

- Carcinoid syndrome is present in around 20% of patients with NETs
- Linked to poorer prognosis
- Number of therapeutic options currently available with more options under study:-
  - Increase SSA doses
  - Everolimus (if available)
  - PRRT

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