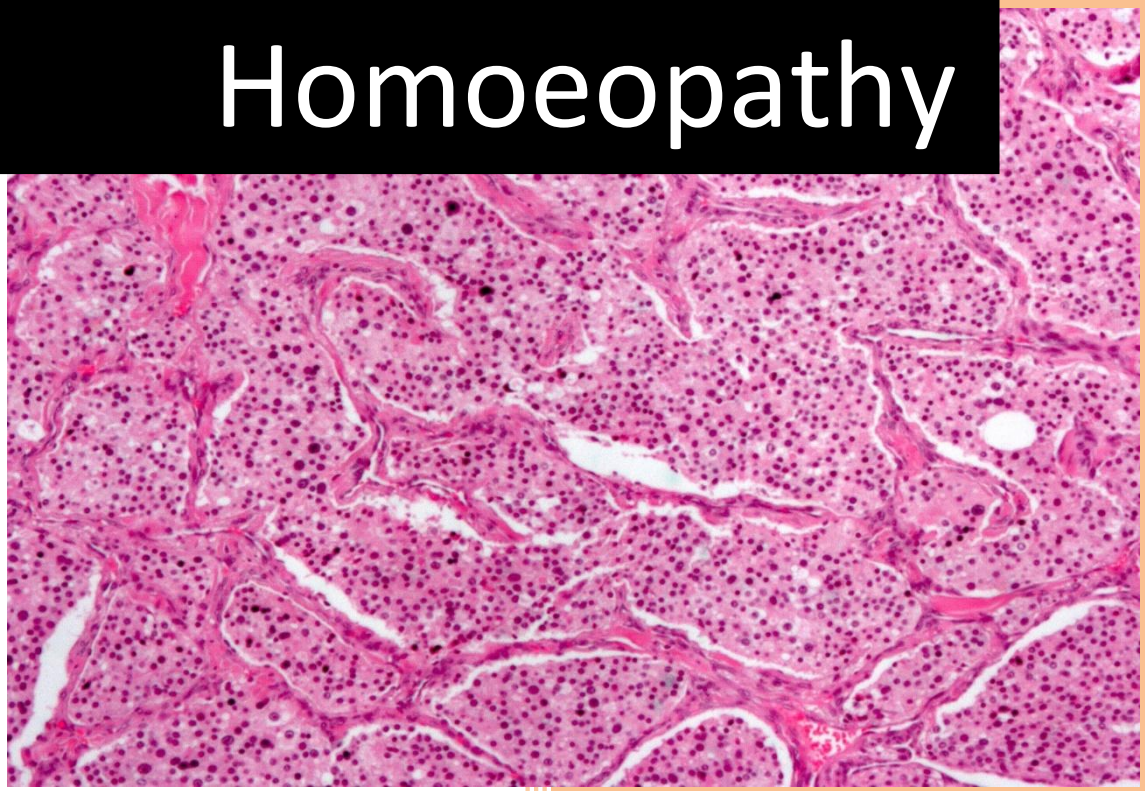
Pheochromocytoma and Homoeopathy



Dr. Rajneesh Kumar Sharma

MD (Homoeopathy)

Pheochromocytoma and Homoeopathy

© Dr. Rajneesh Kumar Sharma M.D. (Homoeopathy)
Homoeo Cure & Research Institute
NH 74, Moradabad Road, Kashipur (Uttaranchal) INDIA
Pin- 244713 Ph. 9897618594
E. mail- drrajneeshhom@hotmail.com
www.cureme.org.in

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Definition

Pheochromocytoma is, recurrently, a benign tumor of the sympathetic nervous system or chromaffin cells (Psora/ Sycosis/ Syphilis), generally found in adrenal medulla, that produces excess norepinephrine and epinephrine (Psora/ Sycosis) and causing either episodic or persistent

hypertension, headaches, nausea, etc. and can result in severe or life-threatening damage to other body systems, especially the cardiovascular system (Psora/ Sycosis/ Syphilis).

Etymology

Origin of word- Greek "phaios =dark, chroma = color, kytos =cell, oma = tumor

Synonyms- PCC, Adrenal paraganglioma, Chromaffin cell tumor, Paraganglioma

Incidence

Commonest between the ages of 20 and 50, but the tumor can develop at any age.

Symptoms

Most common signs and symptoms	Less common signs or symptoms
Dyspnea (Psora)	Anxiety (Psora)
Fever (Psora)	Constipation (Psora/ Sycosis)
Headache (Psora)	Convulsions (Psora/ Syphilis)
Heat intolerance (Psora)	Diarrhea (Psora/ Sycosis)
Heavy sweating (Psora/ Sycosis)	Dizziness (Psora)
Hypertension, sustained or paroxysmal (Psora/ Sycosis)	Hyperglycemia (Psora/ Sycosis)
Orthostatic hypotension (Psora)	Pain/Paresthesia (Psora)
Flushing (Psora)	Stress (Psora)
Pallor (Psora/ Syphilis)	Visual symptoms (Psora)
Tachycardia (Psora)	Vomiting (Psora)
Tremors (Psora)	Weight loss (Psora/ Syphilis)

Causes

In most cases, the exact cause of pheochromocytoma is unknown. Most cases occur randomly or sporadically, for unknown reasons.

Approximately 25-35 percent of cases of pheochromocytomas may be familial, resulting from genetic disruptions or mutations to certain genes. Mutations (Psora) of Gene 17 Neurofibromatosis type 1, SDHB and SDHD are all known to cause familial pheochromocytoma, accompanied by Von Hippel–Lindau disease, neurofibromatosis, or familial paraganglioma depending on the mutation.

Pheochromocytoma is a tumor of the multiple endocrine neoplasia syndrome, type IIA and type IIB (also known as MEN IIA and MEN IIB, respectively). Pheochromocytoma linked to MEN II can be caused by RET oncogene mutations. Both syndromes are characterized by pheochromocytoma as well as thyroid medullary carcinoma. MEN IIA also presents with hyperparathyroidism, while MEN IIB also presents with mucosal neuroma. (Psora/ Sycosis/ Syphilis)

The symptoms appear due to over secretion of catecholamines by the tumor cells. The usual cause in 90% of cases is a tumor of the inner core of the adrenal gland known as the adrenal medulla which overproduces both adrenaline and noradrenaline. However, in 10% of cases, the cause is the overproduction of noradrenaline from another source known as the sympathetic nerve chain. This chain comprises a series of nerves with swellings called ganglions or nodules which stretch from the head to the bladder situated along either side of the spine. Normally this nerve chain releases noradrenaline to maintain the bodies proper functioning but in rare cases can become cancerous and

overproduce noradrenaline; this is known as ganglioneuroma or sympathoblastoma. (Psora/ Sycosis/ Syphilis)

Types

Pheochromocytomas and Paragangliomas are neural crest-derived tumors. Pheochromocytomas are chromaffin cell tumors that produce, store, metabolize, and secrete catecholamines. (Psora/ Sycosis/ Syphilis)

Sporadic pheochromocytomas are usually unicentral and unilateral while familial pheochromocytomas are often multicentric and bilateral. Both adrenal and extra-adrenal paragangliomas display similar histopathological characteristics. Unusual sites in the abdomen and pelvis include kidney, bladder, urethra, prostate, spermatic cord, genital tract, and liver.

Familial pheochromocytoma

Some common familial endocrine tumors are-

MEN 2a (Multiple Endocrine Neoplasia type 2a)

Usually bilateral Pheochromocytomas MTC (Medullary Thyroid Cancer), HPT (Hyperparathyroidism)

MEN 2b (Multiple Endocrine Neoplasia type 2b)

Usually bilateral Pheochromocytomas, MTC, mucosal neuroma, marfanoid habitus

Von Hippel-Landau

Usually bilateral Pheochromocytomas, retinoblastoma, cerebellar hemangioma, nephroma, renal/pancreas cysts

NF1 or Neurofibromatosis type 1 (Von Recklinghausen's)

Café-au-lait spots, neurofibroma, optic glioma

Familial paraganglioma

Rare tumors of the autonomic nervous system occurring in sporadic and hereditary form

Familial pheochromocytoma & islet cell tumor

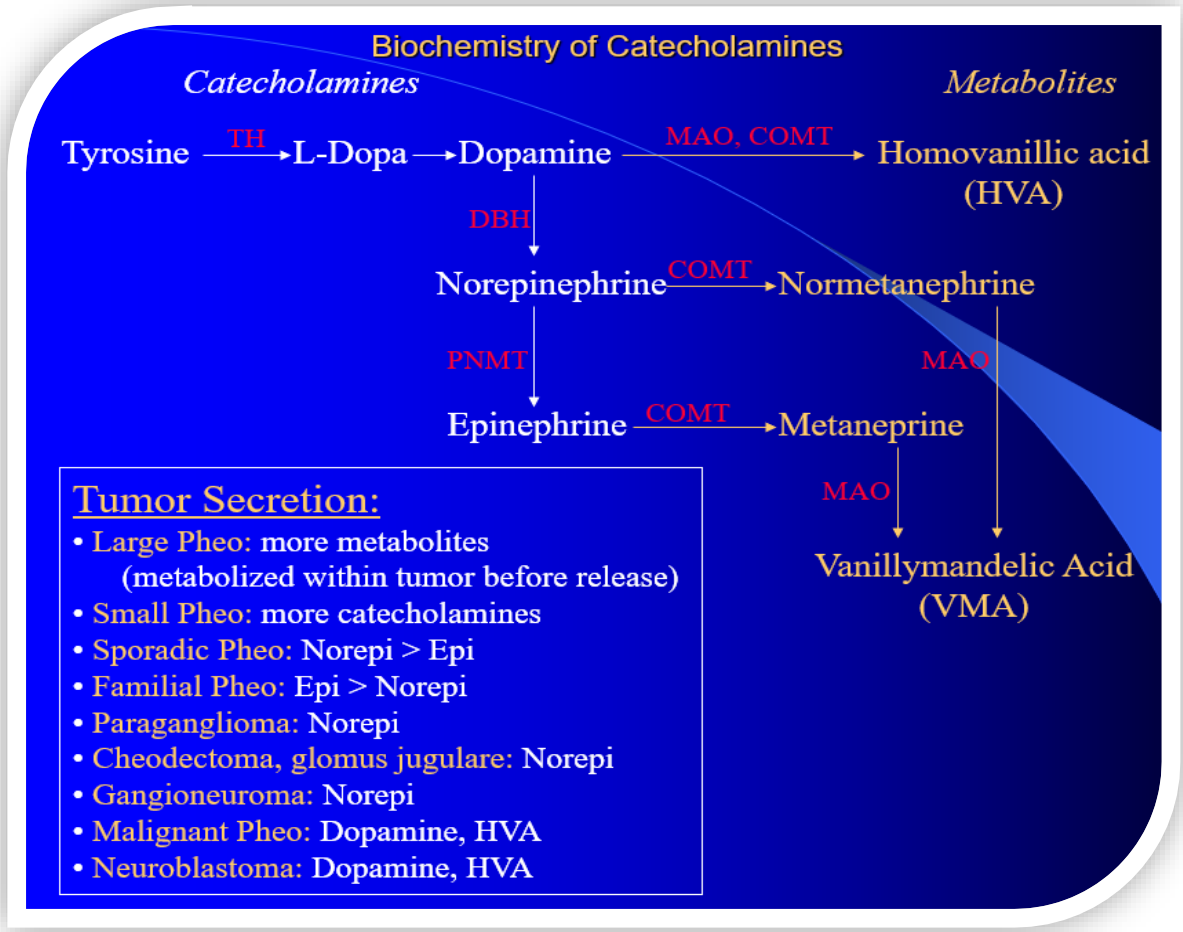
The most common tumors seen in MEN1 involve the parathyroid gland, islet cells of the pancreas, and pituitary gland

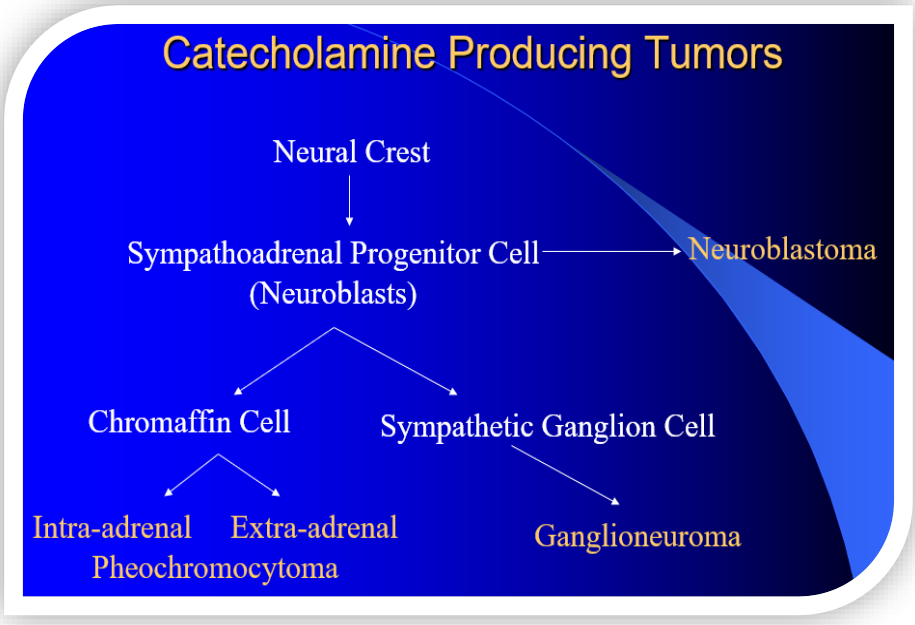
Others

Tuberous sclerosis, Sturge-Weber, ataxia-telangiectasia, Carney’s Triad (Pheochromocytoma, Gastric Leiomyoma, Pulmonary chondroma)

Pathophysiology

Highly variable symptomatology in patients with pheochromocytoma may reflect variations in nature and types of catecholamines secreted, as well as co-secretion of neuropeptides- vasoactive intestinal peptide, corticotrophin, neuropeptide Y, atrial natriuretic factor, growth hormone-releasing factor; somatostatin, parathyroid hormone related peptide, calcitonin, and adrenomedulin. The classic example is the pheochromocytoma with ectopic secretion of corticotrophin or corticotrophin-releasing factor, resulting in the presentation of Cushing’s syndrome.





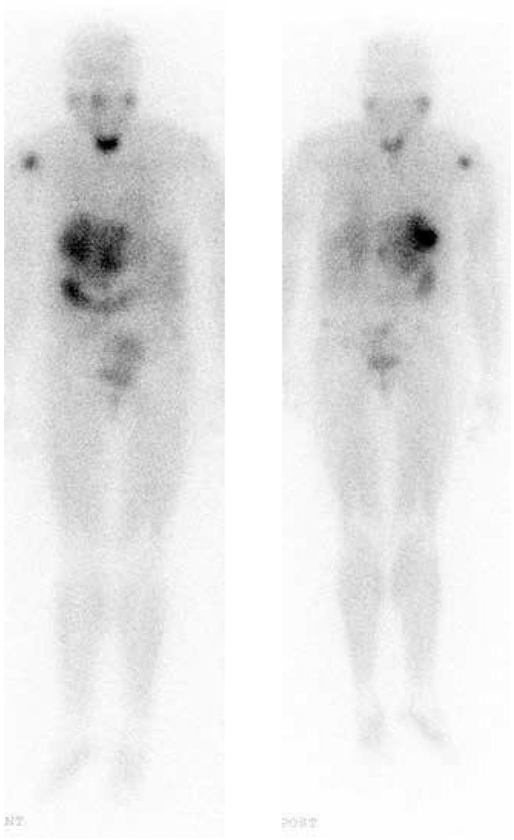
Pheochromocytomas have also been described that secrete excessive amounts of vasoactive intestinal peptide, this resulting in presentation of watery diarrhea and hypokalemia. There are several Catecholamine Producing Tumors-

- Pheochromocytoma
- Paraganglioma (extra-adrenal pheochromocytoma)
    - Originate in extra-adrenal sympathetic chain/chromaffin tissue
- Ganglioneuroma
    - Behave like paraganglioma biochemically
- Neuroblastoma
    - Common malignancy in children, adrenal or sympathetic chain
    - Catecholamine humoral effects usually minor
    - Rapid growth & widespread metastasis
    - Some tumors differentiate and spontaneously regress
- Chemodectoma
    - Carotid body, behave like paraganglioma biochemically
- Glomus jugulare tumor
    - Intracranial branch of CN IX and X
    - Behave like paraganglioma biochemically

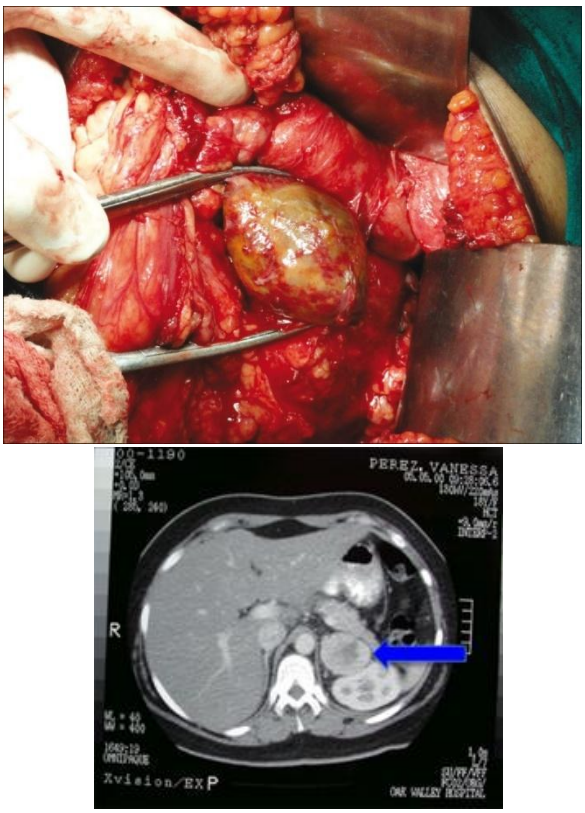
Diagnosis

- High levels of noradrenaline and/or adrenaline in a 24hour collection of urine.
- Occasionally blood noradrenaline and/or adrenaline are measured but usually this is not required where urine tests show high levels of these hormones.
- CAT scan or MRI scan of adrenals show one or both adrenals enlarged. Where the condition is due to sympathetic chain tumor a MRI of the body will pick up the abnormalities.
- Radioactive Iodine^{131} labelled meta-iodobenzyl guanidine (MIBG) scan. MIBG is taken up by the cells over actively making noradrenaline / adrenaline. This test is not always successful if the cells concerned are not actually overproducing at the time of the testing.

Biochemical tests of catecholamine excess		
Biochemical Test	Analytes Measured	Form Measured
Urine tests		
Catecholamines	Norepinephrine, epinephrine, and dopamine	Free
Fractionated metanephrines	Normetanephrine and metanephrine	Sum of conjugated plus free
Total metanephrines	Single measurement as combined sum	Sum of conjugated plus free
VMA (vanillylmandelic acid)		Free
Blood tests		
Catecholamines	Norepinephrine, epinephrine, and dopamine	Free
Free metanephrines	Normetanephrine and metanephrine	Free
Deconjugated metanephrines	Normetanephrine and metanephrine	Sum of conjugated plus free



MIBG Scan- Right sided pheochromocytoma



MRI Scan- Left sided pheochromocytoma

Differential diagnosis

The differential diagnoses of pheochromocytoma include-

Endocrine

- Adrenal medullary hyperplasia
- Hyperthyroidism, thyroid storm
- Carcinoid
- Hypoglycemia (often due to the presence of insulinoma)
- Medullary thyroid carcinoma
- Mastocytosis
- Menopausal syndrome

Cardiovascular

- Heart failure
- Arrhythmias
- Ischemic heart disease, angina pectoris
- Baroreflex failure
    - Syncope
    - Orthostatic hypertension
    - Labile hyper noradrenergic essential hypertension
    - Renovascular disease

Neurologic

- Migraine or cluster headaches

- Stroke
- Diencephalic autonomic epilepsy
- Meningioma
    - Pots (postural orthostatic tachycardia syndrome)
    - Guillain-Barre syndrome
    - Encephalitis

Psychogenic

- Anxiety or panic attacks
    - Factitious use of drugs
    - Somatization disorder
    - Hyperventilation

Pharmacologic

- Tricyclic antidepressant
- Cocaine
- Alcohol withdrawal
- Drugs stimulating adrenergic receptors
- Abrupt clonidine withdrawal
- Dopamine antagonists
- Monoamine oxidase inhibitors
- Ephedrine-containing drugs
- Factitious use of various drugs including catecholamines

Miscellaneous

- Neuroblastoma, ganglioneuroma, ganglioneuroblastoma
- Acute intermittent porphyria
    - Lead and mercury poisoning
    - Mastocytosis
    - Recurrent idiopathic anaphylaxis
    - Unexplained flushing spells

Pseudopheochromocytoma

Pseudopheochromocytoma refers to the large majority of individuals with severe paroxysmal hypertension, whether normotensive or hypertensive between episodes, in whom pheochromocytoma has been ruled out.

Factitious Pheochromocytoma

Factitious disorders are characterized by the intentional production of physical symptoms as a means of assuming the sick role. Malingering is characterized by intentional production of false or grossly exaggerated physical or psychological symptoms motivated by external incentives.

Risk factors

People with rare inherited disorders have an increased risk of developing a pheochromocytoma or paraganglioma, and tumors associated with these disorders are more likely to be cancerous. These genetic conditions include the following-

- Multiple endocrine neoplasia, type II (MEN II) is a disorder resulting in tumors in more than one part of the body's hormone-producing (endocrine) system. Other tumors associated with MEN II can appear on the thyroid, parathyroid, lips, tongue and gastrointestinal tract.
- Von Hippel-Lindau disease can result in tumors at multiple sites, including the central nervous system, endocrine system, pancreas and kidneys.
- Neurofibromatosis 1 (NF1) results in multiple tumors in the skin (neurofibromas), pigmented skin spots and tumors of the optic nerve.
- Hereditary paraganglioma syndromes are inherited disorders that result in either pheochromocytomas or paragangliomas.

Complications

Emergency situations related to catecholamine excess released from pheochromocytoma-

Pheochromocytoma multisystem crisis (PMC)

- Encephalopathy
- Hypertension and/or hypotension
- Multiple organ failure
- Temperature, 40^0c

Cardiovascular

- Acute heart failure
- Arrhythmia
- Cardiomyopathy
- Collapse
- Dissecting aortic aneurysm
- Hypertensive crisis
    - Medication-induced or other mechanisms
    - Upon induction of anesthesia
- Limb ischemia, digital necrosis, or gangrene
- Myocardial infarction
- Myocarditis
- Shock or profound hypotension

Pulmonary

- Acute pulmonary edema
- Adult respiratory distress syndrome

Abdominal

- Abdominal bleeding
- Acute intestinal obstruction
- Acute pancreatitis
- Bowel ischemia with generalized peritonitis
- Cholecystitis
- Colon perforation
- Megacolon
- Mesenteric vascular occlusion
- Paralytic ileus
- Severe enterocolitis and peritonitis

Neurological

- Hemiplegia
- Limb weakness

Renal

- Acute renal failure
- Acute pyelonephritis
- Severe hematuria

Metabolic

- Diabetic ketoacidosis
- Lactic acidosis

Treatment

Pheochromocytoma symptoms are variable and very confusing. They differ time to time making it impossible to predict frequent remedies. In spite of these all, the following remedies are of excellent service in cases of pheochromocytoma.

Most common Homoeopathic remedies for Pheochromocytoma

Acetic acid

- MIND -ANXIETY
- PERSPIRATION - PROFUSE
- FEVER - FEVER, heat in general
- HEAD - PAIN
- GENERALS - HEAT - flushes of
- GENERALS - TREMBLING - Externally
- GENERALS- HEAT- flushes of- perspiration - with
- SKIN - DISCOLORATION - pale
- VERTIGO -VERTIGO
- RECTUM- CONSTIPATION
- GENERALS - EMACIATION
- STOMACH -VOMITING

Adrenalinum

- GENERALS - HYPERTENSION
- GENERALS - HYPOTENSION
- GENERALS - HYPERTENSION - sudden
- GENERALS - TREMBLING - Externally
- CHEST- PALPITATION of heart
- VERTIGO - VERTIGO
- GENERALS- EMACIATION
- STOMACH -VOMITING

Augusta vera

- MIND -ANXIETY
- FEVER - FEVER,heat in general
- HEAD - PAIN
- GENERALS - HEAT- flushes of
- GENERALS - TREMBLING - Externally
- CHEST- PALPITATION of heart
- GENERALS- HEAT- flushes of- perspiration - anxiety;and
- VERTIGO -VERTIGO
- RECTUM- CONSTIPATION
- GENERALS - EMACIATION

Antim crud

- MIND - ANXIETY
- PERSPIRATION - PROFUSE
- FEVER - FEVER, heat in general
- HEAD - PAIN
- GENERALS - HEATED, BECOMING
- GENERALS - HEAT - flushes of
- GENERALS -TREMBLING -Externally
- CHEST- PALPITATION of heart
- GENERALS - HEAT- flushes of- palpitations; with
- GENERALS - HEAT- flushes of- perspiration -with
- VERTIGO -VERTIGO
- RECTUM- CONSTIPATION
- GENERALS - EMACIATION
- STOMACH- VOMITING

Coffea cruda

- MIND - ANXIETY
- GENERALS - HYPERTENSION

- FEVER - FEVER, heat in general
- HEAD - PAIN
- GENERALS - HEATED, BECOMING
- GENERALS - HEAT -flushes of
- GENERALS- HYPERTENSION- sudden
- GENERALS - TREMBLING - Externally
- CHEST- PALPITATION of heart
- VERTIGO- VERTIGO
- RECTUM - CONSTIPATION
- GENERALS - EMACIATION
- STOMACH -VOMITING

Fluoric acid

- MIND -ANXIETY
- GENERALS - HYPERTENSION
- PERSPIRATION - PROFUSE
- FEVER - FEVER, heat in general
- HEAD - PAIN
- GENERALS - HEATED, BECOMING
- GENERALS- HEAT- flushes of
- GENERALS - TREMBLING - Externally
- GENERALS - HEAT- flushes of- perspiration - with
- SKIN - DISCOLORATION - pale
- VERTIGO -VERTIGO
- RECTUM- CONSTIPATION
- GENERALS - EMACIATION

Kali bi chrom

- MIND - ANXIETY
- PERSPIRATION - PROFUSE
- FEVER - FEVER, heat in general
- HEAD - PAIN
- GENERALS - HEAT - flushes of
- GENERALS - TREMBLING - Externally
- CHEST- PALPITATION of heart
- GENERALS - HEAT - flushes of - perspiration - anxiety; and
- GENERALS - HEAT- flushes of- perspiration - with
- VERTIGO- VERTIGO
- RECTUM -CONSTIPATION
- GENERALS - EMACIATION
- STOMACH- VOMITING- accompanied by - perspiration
- STOMACH -VOMITING

Morphinum

- MIND- ANXIETY
- PERSPIRATION - PROFUSE
- HEAD - PAIN
- GENERALS - HEAT - flushes of
- GENERALS - TREMBLING - Externally
- CHEST- PALPITATION of heart
- VERTIGO - VERTIGO
- RECTUM - CONSTIPATION
- GENERALS - EMACIATION
- STOMACH -VOMITING

Opium

- MIND -ANXIETY
- PERSPIRATION - PROFUSE
- FEVER - FEVER, heat in general
- HEAD - PAIN
- GENERALS - HEATED, BECOMING
- GENERALS - HEAT- flushes of
- GENERALS -TREMBLING -Externally
- CHEST- PALPITATION of heart
- GENERALS - HEAT- flushes of- perspiration - with
- SKIN - DISCOLORATION - pale
- VERTIGO - VERTIGO
- RECTUM- CONSTIPATION
- GENERALS - EMACIATION
- STOMACH- VOMITING- accompanied by - constipation
- STOMACH -VOMITING

Pulsatilla

- MIND - ANXIETY
- GENERALS - HYPERTENSION
- PERSPIRATION - PROFUSE
- FEVER - FEVER, heat in general
- HEAD - PAIN
- GENERALS - HEATED, BECOMING
- GENERALS- HEAT- flushes of
- GENERALS - TREMBLING - Externally
- CHEST- PALPITATION of heart
- GENERALS- HEAT- flushes of palpitations; with
- SKIN - DISCOLORATION - pale
- VERTIGO -VERTIGO
- RECTUM -CONSTIPATION
- GENERALS- EMACIATION
- STOMACH -VOMITING

Sulphuric acid

- MIND -ANXIETY

- PERSPIRATION - PROFUSE
- FEVER - FEVER, heat in general
- HEAD - PAIN
- GENERALS - HEAT - flushes of
- GENERALS - TREMBLING - Externally
- CHEST- PALPITATION of heart
- GENERALS - HEAT- flushes of- palpitations; with
- GENERALS - HEAT- flushes of- perspiration - with
- SKIN - DISCOLORATION - pale
- VERTIGO - VERTIGO
- RECTUM- CONSTIPATION
- GENERALS - EMACIATION
- STOMACH -VOMITING

Tabaccum

- MIND -ANXIETY
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- PERSPIRATION - PROFUSE
- HEAD - PAIN
- GENERALS - HEAT· flushes of
- GENERALS - TREMBLING - Externally
- CHEST- PALPITATION of heart
- SKIN - DISCOLORATION - pale
- VERTIGO -VERTIGO
- RECTUM - CONSTIPATION
- GENERALS - EMACIATION
- STOMACH- VOMITING- accompanied by - perspiration
- STOMACH -VOMITING

Valeriana

- MIND -ANXIETY
- GENERALS - HYPERTENSION
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- FEVER - FEVER, heat in general
- HEAD - PAIN
- GENERALS - HEAT - flushes of
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- CHEST- PALPITATION of heart
- GENERALS - HEAT- flushes of- palpitations; with
- SKIN- DISCOLORATION- pale
- VERTIGO -VERTIGO
- STOMACH- VOMITING

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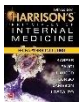

Cardiac Manifestations of Systemic Disease > PHEOCHROMOCYTOMA Harrison's Principles of Internal Medicine... (See also Chap. 407) In addition to causing labile or sustained hypertension, the high circulating levels of catecholamines resulting from a pheochromocytoma may cause direct myocardial injury. Focal myocardial necrosis and inflammatory cell infiltration are present in ~50% of patients who...

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Endocrine Disorders > PHEOCHROMOCYTOMA & PARAGANGLIOMA Current Medical Diagnosis & Treatment 2018

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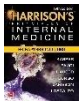

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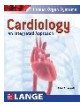
Radar 10



Systemic Arterial Hypertension and Antihypertensive Drugs > Pheochromocytoma Cardiology: An Integrated Approach... Table 13.4 Pheochromocytoma clinical features, lab workup, and treatment summary Clinical features Lab workup Imaging studies Treatment Episodic headaches, sweating, and tachycardia. Fifty percent of patients have paroxysmal hypertension while the rest...

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