

Peripheral Vascular Diseases

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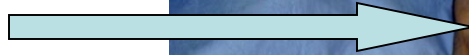
Ecthyma

Definition

- It refers to the chronic ulcer occurs in the tibia of the Lower limb. Trouser-margin ulcer or Skirt-wind.
(*<<ZhengZhi ZhunSheng>> Wang ken-tang. Ming dynasty*)
- Decayed leg.
(*<<WaiKe ZhengZhi QuanShu>> Xu ke-chang. Qing dynasty*)
- Location: 1/3 of the inner or outer side of the lower limb, commonly known as chronic leg ulcer in western medicine.

Diagnostic Essentials

1. History of superficial veins varicose



2. Ulceration at inner or outer of the lower limb



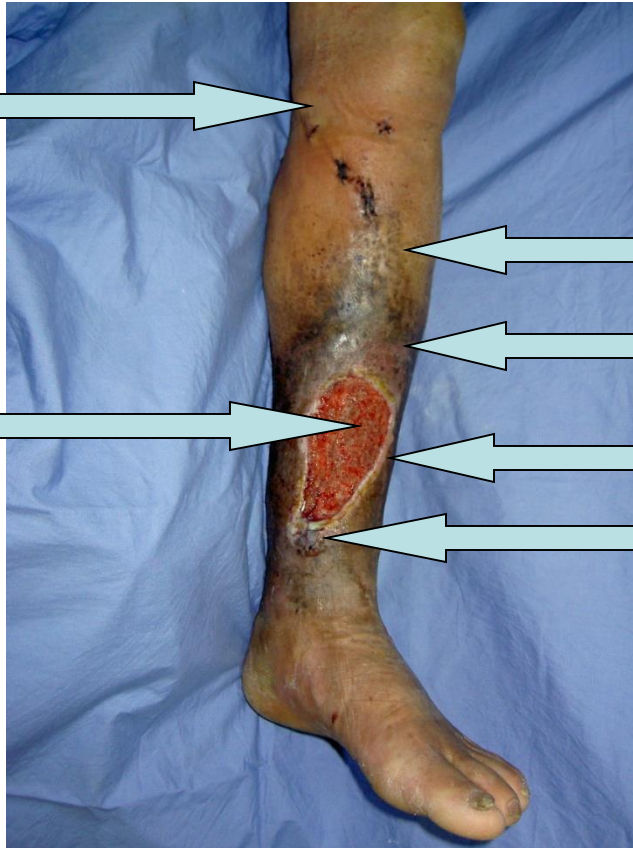
3. signs of nutrition obstacle of the skin surrounding the ulcer

skin luster

pigmentation

edema

scale



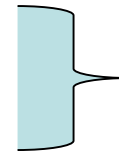
Differential diagnosis

- Tuberculous ulcer in the lower leg
 1. History of TB
 2. Comparatively deep with a sawtooth margin and thin purulent exudate
 3. difficult to heal
 4. Mycobacterium tuberculosis positive
- Cancerous ulcer in the lower leg
 1. Primary skin cancer or canceration of chronic ecthyma
 2. A volcano with an irregular margin, hard, light gray in color
 3. easy to bleed
 4. Local biopsy is necessary.

Ecthyma

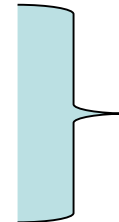
Etiology & Pathogenesis

Local tissue injury;
Pathogenic damp-heat



External reason

Long periods of standing lead to
sinking of spleen qi; qi and blood
stagnation



Internal reason

Ecthyma

- **Internal Therapy**

Downwards flow of damp-heat

- ✓ Signs and symptom: wound surface with odorous pus, swelling and hot skin with eczema, pain and itching
Tongue: yellowish and greasy
Pulse: slippery and rapid
- ✓ Treatment Principles: Clear heat, resolve dampness, harmonize the ying-nutrients and relieve swelling
- ✓ Formula: Modified San Miao Wan and Wu Shen Tang

Ecthyma

- **Internal Therapy**

Accumulation of dampness due to spleen deficiency

- ✓ Signs and symptom: dark wound surface with yellow pus, swelling of the affected limb, a poor appetite, abdominal distention, loose stools

Tongue: light red with a white greasy coating

Pulse: deep and weak

- ✓ Treatment Principles: Tonify spleen and remove dampness
- ✓ Formula: Modified Shen Ling Bai Zhu San and San Miao Wan

Ecchyma

- **Internal Therapy**

Blood stasis due to qi deficiency

- ✓ Signs and symptom: chronically decomposing of wound surface, peeling dead tissue with light red granulation, dark, black or stiffening local skin

Tongue: light purple with ecchymosis and a white greasy coating

Pulse: thready and choppy

- ✓ Treatment Principles: Tonify qi, invigorate blood, resolve stasis and promote regeneration of new tissue
- ✓ Formula: Modified Bu Yang Huan Wu Tang

Ecthyma

- **External Therapy**

- Early stage

- without oozing: Jin Huang Gao

- oozing: solution with huang bai, da qing ye, etc.

- Late stage

- difficult in breaking down of dead tissue: apply Hong You Gao, Jiu Yi Dan or Ba Er Dan.

- after breaking down of dead tissue: apply Ba Yu Gao and Sheng Ji San.

- **Chinese Patent Therapy**

- **Other Therapies**

- High ligation and stripping of the greater saphenous vein

Ecthyma

Prevention & Lifestyle

- Elevated affected leg, avoid long standing and sitting position
- Wear medical elastic stocking to prevent reoccurrence after wound healing
- Hot water bath or soak is not advisable
- Maintain bowel regularity
- Slightly elevated leg when sleeping
- Engage in low-impact physical exercises such as Tai-Chi, walking, bicycling is advisable

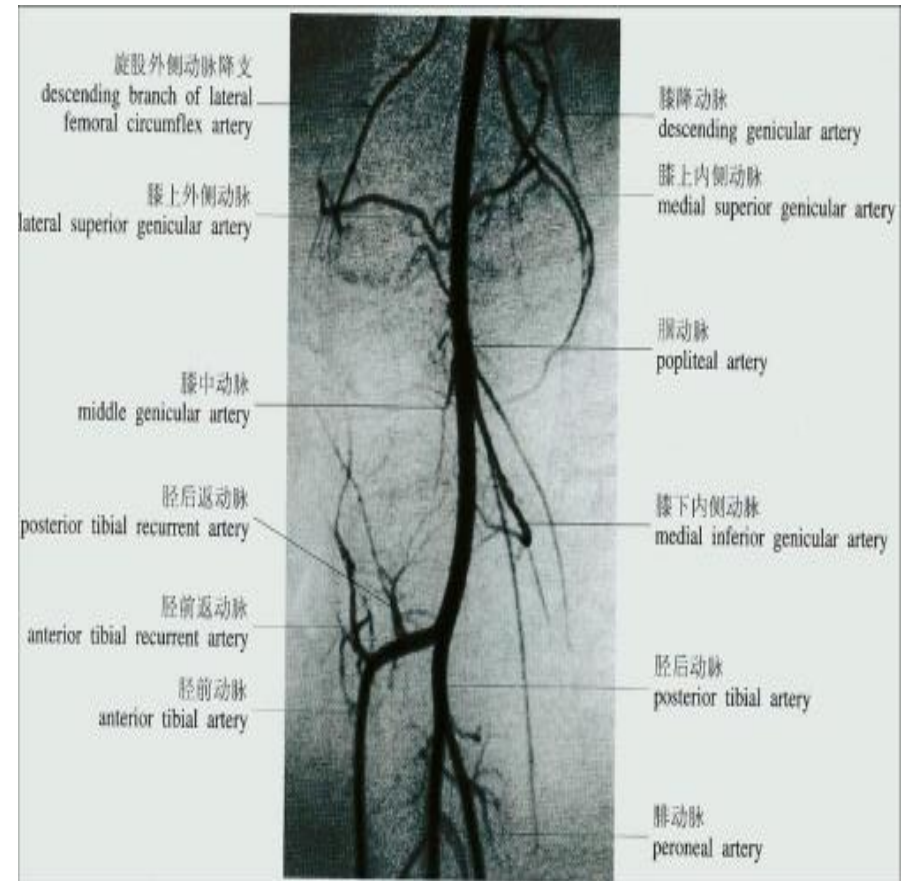
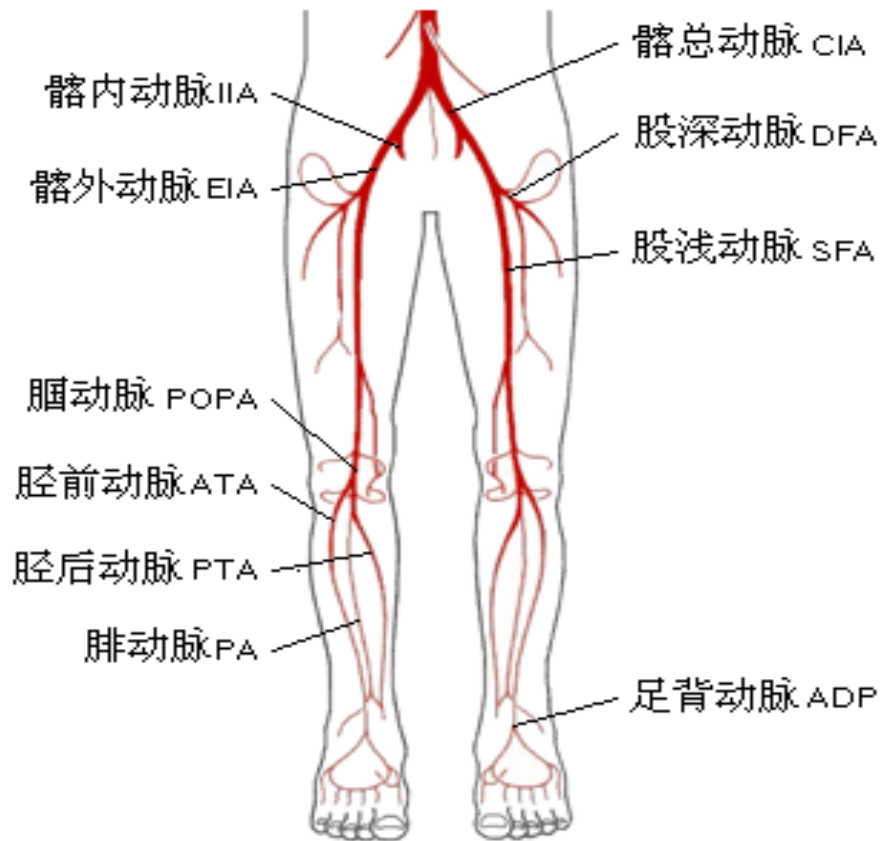
Gangrene

Definition

- Gangrene is a complication of necrosis, which is caused by chronic peripheral vascular diseases.
- Location: distal end of the lower extremities rather than upper ones
- The related conditions in Western medicine include 3 diseases: thromboangiitis obliterans; arteriosclerotic occlusion and diabetic extremity gangrene.

Thromboangiitis obliterans

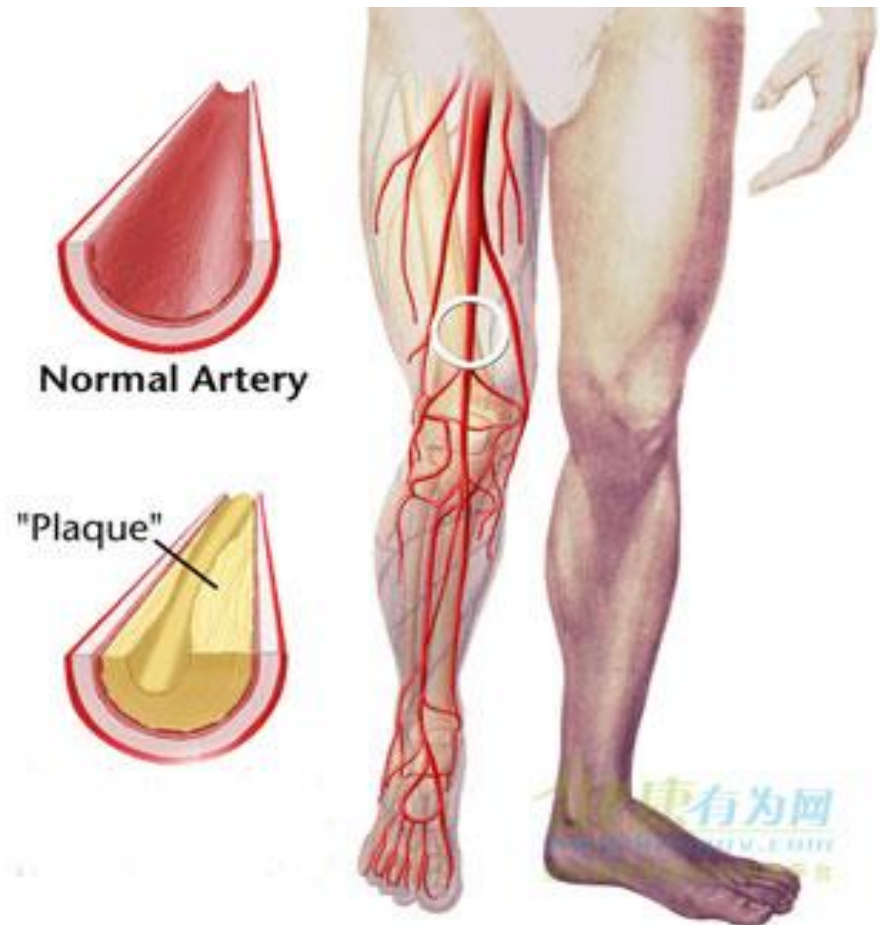
Anatomy



Thromboangiitis obliterans

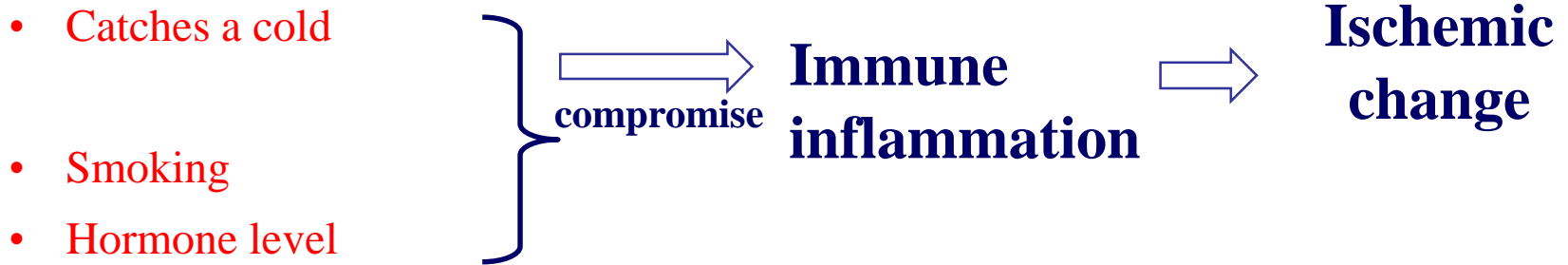
Pathological changes

- Key reason: immune reaction



Thromboangiitis obliterans

Etiology & Pathogenesis



TCM:

Deficiency of spleen qi
kidney-yang

Internal reason

Pathogenic cold and cold-dampness

External reason

Thromboangiitis obliterans

Clinical manifestations

- male patients aged 20-40
- more commonly occurs in cold seasons
- risk factors:
 - catching a cold,
 - contraction of dampness,
 - longtime smoking,
 - traumatic injury.

Thromboangiitis obliterans

Clinical manifestations

Phase 1	cold sensation, chills, soreness and pain and numbness in the last segment of the infected limb	intermittent claudication	The artery in the dorsum of foot can be decreased.
Phase 2	Cold sensation, chills, sore, painful and numb sensation, and intermittent claudication can be gradually aggravated	Pain can appear at night to cause insomnia.	No pulsation in the dorsal artery of the foot.
Phase 3	Occurrence of ulceration or dry gangrene	Severe pain,fatigue	No pulsation in the dorsal artery of the foot

Thromboangiitis obliterans

Clinical manifestations

Gangrene Grade 1	Limited to the toes and fingers
Gangrene Grade 2	Limited to the voix pedis
Gangrene Grade 3	Spreads above the ankle joints

Thromboangiitis obliterans

- **Internal Therapy**

Cold-dampness obstructing the collaterals

- ✓ Signs and symptom: cold, numbness, pain and distension of the affected fingers or toes can be alleviated by warmth and aggravated by cold; intermittent limping; a weak pulsation of the dorsal artery.

Tongue: pale with a white, greasy coating

Pulse: deep and thready

- ✓ Treatment Principles: Warm the channels, expel cold, and invigorate blood
- ✓ Formula: Modified Yang He Tang

Thromboangiitis obliterans

- **Internal Therapy**

Blood stasis

- ✓ Signs and symptom: pain aggravated; the skin of the affected toes or fingers becomes dark red or purple; The pulsation of the dorsal artery disappears.

Tongue: dark-red with ecchymosis and a thin white coating

Pulse: wiry or unsmooth

- ✓ Treatment Principles: Invigorate blood, resolve stasis, unblock the collaterals and relieve pain
- ✓ Formula: Modified Táo Hóng Sì Wù Tāng

Thromboangiitis obliterans

- **Internal Therapy**

Accumulation of toxic-heat

- ✓ Signs and symptom: severe pain in the affected limbs that becomes aggravated at nights; the skin of the affected limbs turns swelling, dark and purple. The local area may decompose with an unpleasant odor. The wound appears anything but fresh.

Tongue:red with a yellow greasy coating

Pulse: wiry and rapid

- ✓ Treatment Principles: Clear heat, resolve dampness, invigorate blood and resolve stasis
- ✓ Formula: Modified Sì Miào Yǒng Ān Tāng

Thromboangiitis obliterans

- **Internal Therapy**

Toxic-heat damaging yin

- ✓ Signs and symptom: dry skin, loss of skin hair, thickening and deformity of the nails, muscular atrophy and dry gangrene; a dry mouth, thirst, constipation, and yellow urine

Tongue:red with a yellow coating

Pulse: wiry and rapid

- ✓ Treatment Principles: Clear heat, resolve toxins, nourish yin and invigorate blood
- ✓ Formula: Modified Gù Bù Tāng

Thromboangiitis obliterans

- **Internal Therapy**

Deficiency of qi and blood

- ✓ Signs and symptom: after the falling away of dead tissue; the granulation is light or dark red; a sallow complexion, weight loss, low spirits and fatigue

Tongue: pale and swollen

Pulse: thready and weak

- ✓ Treatment Principles: Tonify qi and nourish blood
- ✓ Formula: Modified Bā Zhēn Tāng or Shí Quán Dà Bǔ Tāng

Thromboangiitis obliterans

- **External Therapy**

- Application method

- initial stage: “Chong He Ointment” or “Hui Yang Yu Long Ointment”

- after rupture: “Jiu Yi Pellet” and cover with “Hong You Ointment”

- Late stage: “Sheng Ji Powder” and cover with “Sheng Ji Ointment”

- Cupping and bloodletting

- LI 15 (jiān yú), LI 10 (shǒu sān lǐ), LI 11 (qū chí), LI 4 (hé gǔ),

- ST 36 (zú sān lǐ), GB 34 (yáng líng quán), SP 6 (sān yīn jiāo) and KI 3 (tài xī) on the affected side

- Ear points

- Ear seed to spleen, kidney.

Thromboangiitis obliterans

- **External Therapy**

- Chinese patent medicine
- Chinese patent medicineSurgical method

In accordance with different situations, it is advisable to choose debridement of necrotic tissue, resection and suture of necrotic tissue, amputation and dermatoplasty.

Thromboangiitis obliterans

Prevention & Lifestyle

- After sickness, it is necessary to keep warm in the infected limbs.
- quit smoking completely
- to avoid traumatic injury

Arteriosclerotic Occlusion

Definition

- chronic ischemia of the lower limbs
- caused by arterial stenosis or occlusion due to the generation of plaque on the walls of large and medium arteries

Arteriosclerotic Occlusion

Clinical manifestations

- commonly seen in men above the age of 45
- a history of hyperlipidemia, hypertension and arteriosclerosis
- location: large and medium arteries
- Early stage: manifest as pale, cold and numb skin, coupled with heaviness, a burning or pricking pain and intermittent limping of the affected limbs
- Mid stage: pain during rest occurs on the affected toes and lower legs and the pain becomes aggravated at night
- Late stage: ulceration and gangrene occur, forms typical dry gangrene

Arteriosclerotic Occlusion

- **Internal Therapy**

Retention of Phlegm-Stasis

- ✓ Signs and symptom: a pale complexion, cold, numbness and pricking pain in the affected limbs with intermittent limping
Tongue:pale with ecchymosis and a white greasy coating
Pulse: wiry and thready
- ✓ Treatment Principles: Resolve phlegm, invigorate blood and resolve stasis
- ✓ Formula: Modified Táo Hóng Sì Wù Tāng

Arteriosclerotic Occlusion

- **Internal Therapy**

Accumulation of toxic-heat

- ✓ Signs and symptom: severe pain in the affected limbs that becomes aggravated at night with disturbed sleep; the local area may be decomposing with an unpleasant odor

Tongue:red or purple with a dry, yellow or peeled coating

Pulse: wiry, rapid or thready

- ✓ Treatment Principles: Clear heat, resolve toxins, invigorate blood and unblock collaterals
- ✓ Formula: Modified Sì Miào Yǒng Ān Tāng

Arteriosclerotic Occlusion

- **Internal Therapy**

Yang deficiency of the spleen and kidney

- ✓ Signs and symptom: occurs in senile patients, experience an aversion to cold, cold limbs, muscular atrophy, listlessness, lower back and knee joint pain, impotence, lower sexual drive and enuresis

Tongue: pale with a white coating

Pulse: deep and thready

- ✓ Treatment Principles: Warm and tonify the spleen and kidney and harmonize ying-nutrients and blood
- ✓ Formula: Modified Yòu Guī Yīn

Arteriosclerotic Occlusion

Prevention & Lifestyle

- Avoid traumatic injury and keep warm. Keep the feet clean and dry. Wear comfortable shoes and socks
- Avoid greasy food
- Treat hypertension, hyperlipidemia and coronary heart disease appropriately.

Diabetic Extremital Gangrene

Definition

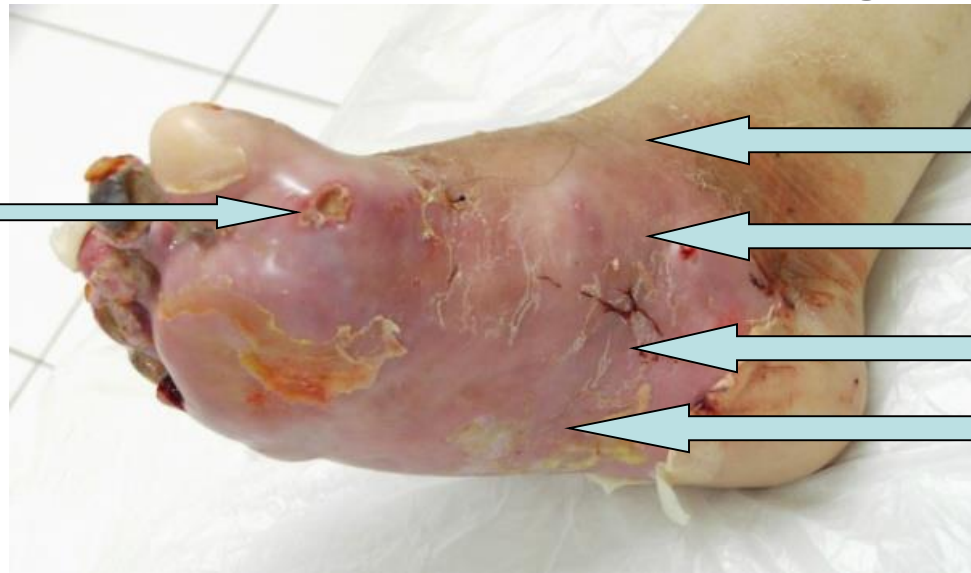
- It refers to a peripheral vascular disease characterized by ischemia, hypoxia and even gangrene of the lower limbs.
- The large, medium, small arteries and microvessels are affected.
- This condition is one of the major complications of diabetes, as well as a major cause of disability.

Diagnostic Essentials

1. History of DM

2. Ulceration at foot

3. signs of foot tissues degeneration



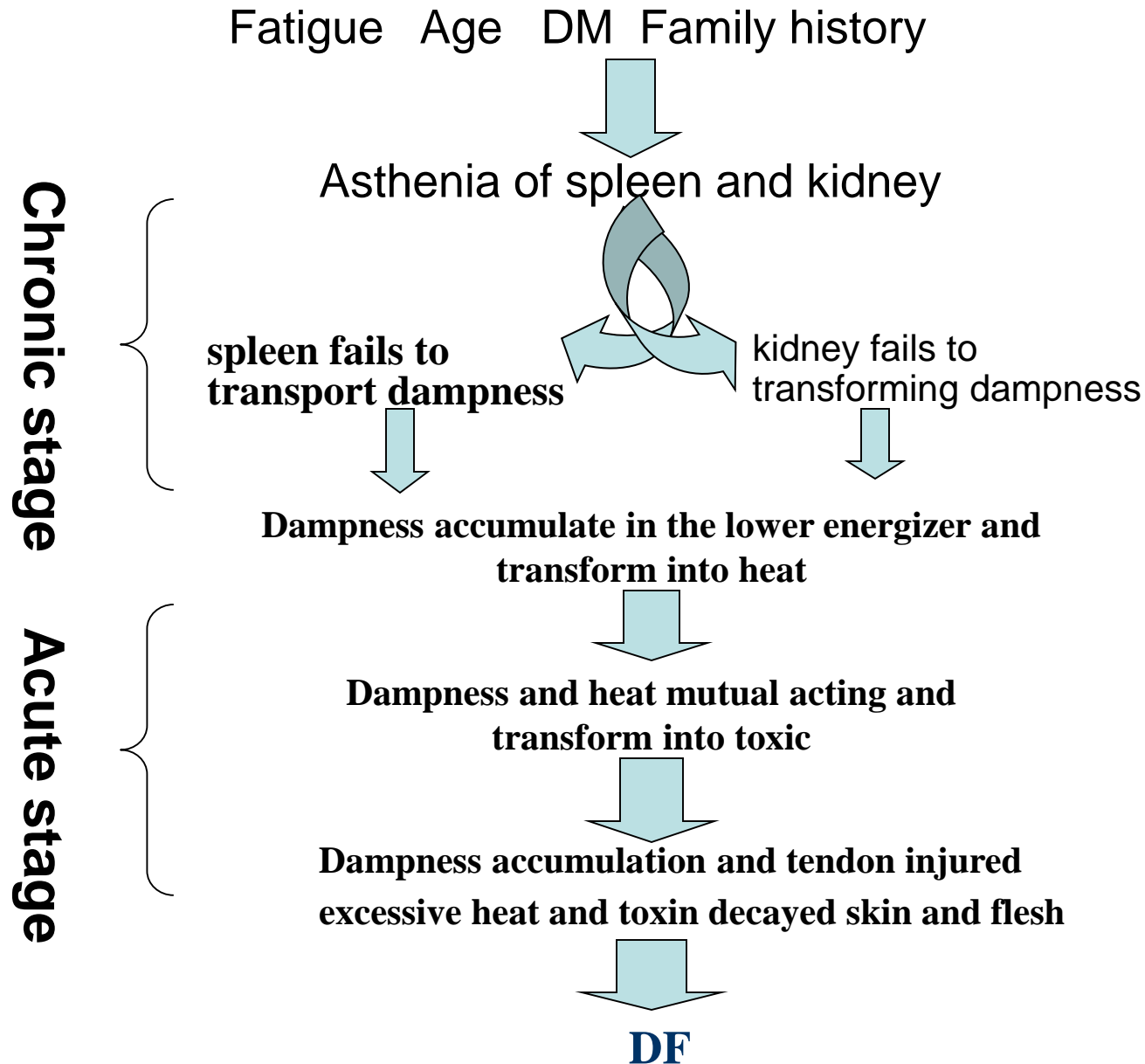
Reddish skin

tumefaction

High skin temperature

A sense of fluctuation

Dieases Mechanism Cascade



Diabetic Extremital Gangrene

Clinical manifestations

- middle aged or senile patients
- a history of diabetes over 5 or even 10 years
- Male patients are more frequent than female patients with the ratio of 3 to 2.
- often occurs bilaterally, with the lower limbs affected more than the upper ones

Diabetic Extremital Gangrene

Clinical manifestations

Wet Gangrene	Wet gangrene starts from a superficial ulceration, and then reach the muscular layer, further causing tendon and bone damage, necrosis of tissue and large abscess cavities. This type is most common and accounts for 72.5% of total recorded cases. The pathological basis is a disturbance of microcirculation.
Dry Gangrene	Ischemia and necrosis of the distal end of the affected limbs manifest as dry and dark skin with well-defined wound surface. The dead tissue may fall away spontaneously. This type of gangrene accounts for 7.5% of total recorded cases. The pathological basis is necrosis caused by ischemia due to medium and small arterial occlusion.
Mixed Gangrene	Mixed gangrene accounts for approximately 20% of total recorded cases. Microcirculation disturbance and arterial occlusion coexist. It manifests as both dry and wet gangrene.

Diabetic Extremital Gangrene

- **Internal Therapy**

Retention of phlegm-stasis

- ✓ Signs and symptom: a pale complexion, cold, numbness and pricking pain in the affected limbs with intermittent limping.

Tongue: pale with ecchymosis and a white coating

Pulse: wiry and thready

- ✓ Treatment Principles: Invigorate blood, resolve stasis and unblock collaterals

- ✓ Formula: Modified Táo Hóng Sì Wù Tāng

Diabetic Extremital Gangrene

- **Internal Therapy**

Accumulation of toxic-heat

- ✓ Signs and symptom: experience severe pain in the affected limbs that become aggravated at night, causing disturbed sleep
Tongue: red or purple with a dry, yellow and peeling coating
Pulse: wiry, rapid or thready
- ✓ Treatment Principles: Clear heat, resolve toxins, invigorate blood and unblock collaterals
- ✓ Formula: Modified Sì Miào Yǒng Ān Tāng

Diabetic Extremital Gangrene

- **Internal Therapy**

Deficiency of qi and yin

- ✓ Signs and symptom: a chronic wound surface that heals with great difficulty; the granulation is anything but fresh;
Tongue: pale with redness on the tip of the tongue and a scanty coating
Pulse: thready
- ✓ Treatment Principles: Tonify qi, nourish blood and invigorate blood
- ✓ Formula: Modified Huáng Qí Biē Jiǎ Tāng

Diabetic Extremital Gangrene

Prevention & Lifestyle

- Treat diabetes and control the blood glucose level
- See also the prevention and lifestyle for arteriosclerotic occlusion

Differential diagnosis of gangrene

Items	Thromboangiitis Obliterans	Arteriosclerotic Occlusion	Diabetic Extremital Gangrene
Smoking history	Almost all	Uncertain	Uncertain
Age	20–40	Above 45	Above 45
Accompanied by migratory superficial thrombophlebitis	Yes	No	No
Hypertension	Rare	Most	Most
Coronary heart disease	No	Yes	Yes/No
Blood lipid level	Normal	Increased	Mostly increased
Blood and urine glucose	Normal	Normal	Increased blood glucose and positive urine glucose
Affected Vessels	Small and medium arteries and veins	Large and medium arteries	Large and microvessels