Diabetic foot infection

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Disclosure

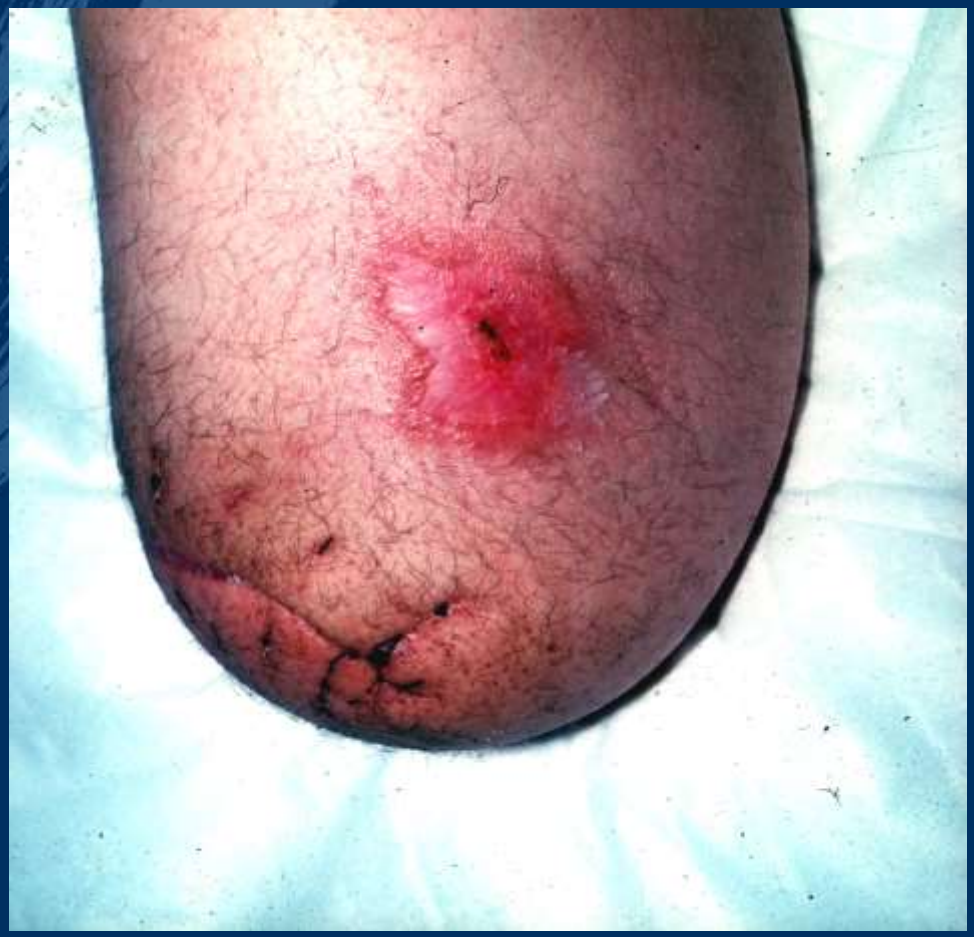
Speaker name:

Dr. Holger LawallI have the following potential conflicts of interest to report:

- ☐ Consulting
- ☐ Employment in industry
- ☐ Stockholder of a healthcare company
- ☐ Owner of a healthcare company
- ☐ Other(s)

- ☒ I do not have any potential conflict of interest

Predictor of Majoramputation



Ischemia and Infection

IWGDF – Guidelines 2019

Prompers L et al. Prediction of outcome in individuals with diabetic foot ulcers: focus on the differences between individuals with and without pad. The EURODIALE Study. Diabtologia 2008;51:747-55

Problems in managing DFS

- increasingly number of patients
- **multiresistent infections (MRSA,MRGN)**
- **colonisation vs. present infection**
- diagnosis of osteomyelitis
- classification
- comorbidity

PAOD and Diabetes : Clinical reality in Germany

treatment, in –hospital complications and outcome(%)

	RF 5				RF 6			
	Dm+	Dm-	alle	p	Dm+	Dm-	alle	p
Pat. n (%)	3061 (44,3 %)	3855 (55,7)	6916 (100)		4108 (48,8)	4308 (51,2)	8416 (100)	
Angio	48,1	54,4	51,6	**<0,001**	48,2	47,6	47,9	
any Revasc	**45**	**55,5**	50,9	**<0,001**	**46,5**	**51,8**	49,2	**<0,001**
EVR	34,2	36,4	35,4		31	28,1	29,5	
Surgery	13,4	23,4	19	**<0,001**	19,7	29,6	24,8	**<0,001**
ARF	2	1,7	1,8		2,8	2,8	2,8	
AMI	0,7	0,9	0,8		1,9	1,6	1,7	
Insult	0,5	0,4	0,4		0,8	0,7	0,7	
Infection	**35,3**	**23,5**	28,7	**<0,001**	**44,3**	**27,4**	35,7	**<0,001**
Sepsis	4,9	4,5	4,7		6,7	5	5,8	**0,001**
Major-Amp.	**13**	**7,3**	9,8	**<0,001**	**47,5**	**36,7**	42	**<0,001**
Mortality	2,6	4	3,4	**0,002**	7,3	9,3	8,3	**0,001**

Freisinger E et al. Curr Res Diab Compl 2017

IWGDF Recommendations

Infection refers to any part of the foot, not only to a wound or an ulcer.

Clinically significant foot ischemia makes both diagnosis and treatment of infection more difficult !

Signs of infection are often blunted

Infections should be classified using the IWGDF/IDSA scheme

If osteomyelitis is demonstrated, classify foot as either grade 3 or grade 4 (add O)

IWGDF Guideline Diab Metab Res Rev 2019

IWGDF/IDSA foot infection classification system

Clinical classification of infection	IWGDF classification
Uninfected :	
No systemic or local symptoms or signs of infection	1 (uninfected)
Infected : At least 2 of these items are present: local swelling / induration, erthema > 0,5 cm around the wound local tenderness or pain, local increased warmth purulent discharge	
Infection with no systemic manifestations , and involving: only the skin or subcutaneous tissue and any erythema < 2 cm around the wound	2 (mild infection)
Infection with no systemic manifestations, and involving: erythema > 2cm from the wound margin tissue deeper than subcutaneous tissue (e.g. tendon, muscle, joint, bone)	3 (moderate infection)
Infection with associated systemic manifestations/SIRS as manifested by > 2 of the following: Temp > 38°C or < 36 C°, heart rate > 90/min, respiratory rate > 20 breaths/min or PaCO2<32 mmHg, leukocytes > 12.000/nl or < 4.000/nl	4 (severe infection)

Treatment of Infection

Antibiotic therapies in DFS (47;48)

	mild (Grade 1)	moderate (Grade 2)	severe (Grade 3)
Application	oral	oral or parenteral	parenteral
Clindamycin, Cephalexin, Amoxicillin/Clavulansre., Levofloxacin	+ + + +		
Cefotixin Ceftriaxon Ampicillin/Sulbactam Cefuroxim + Metronidazol Ciprofloxacin + Clindamycin		+ + + + +	
Piperacillin / Tazobactam Ciprofloxacin/Levofloxacin + Clindamycin Imipenem			+ + +
Vancomycin + Ceftazidim (bei MRSA)			+

Lipsky BA et al. Expert opinion on the management of infections in the diabetic foot. Diab Metab Res Rev 2019

Additions from actual studies in DFS

Fungal foot infection are often overlooked in diabetes foot lesions

prevalence 52-86% in Type 2 diabetics

prevalence 15 % in osteomyelitis (DFO)

Torrence GM et al. J Lower Extrem Wounds 2018

No continuing postsurgical antibiotic administration in routine amputation for DFI

neither duration of postsurgical antibiotic therapy nor immediate postoperative discontinuation altered failure/recurrence rate (17%)

Rossel A et. Endocrin Diab Metab 2019

There is no treshold for optimal duration or administration of antibiotics

Neither duration nor parenteral treatment reduce the risk of recurrence

Gariani K et al. Diab Obesity Metab 2019

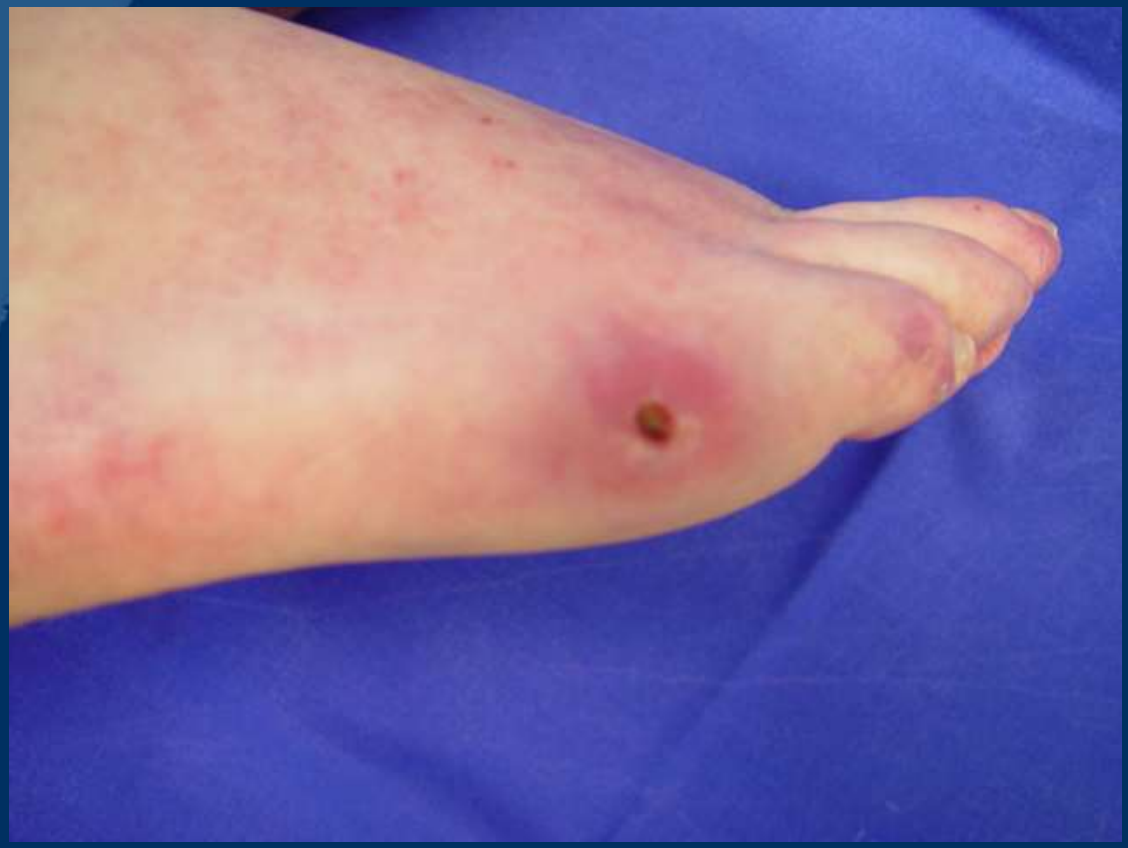
Culture of bone biopsy specimens overestimates rate of residual osteomyelitis after toe or forefoot amputation

Mijuskovic B et al. J Bone Joint Surg 2018

Prevoius DFI episode did not predict a greater likelihood of any MRSA/MRGN

Antibiotic-resistent pathogens (MRSA/MRGN) are not more common in subsequent episodes of DFI. Staph aureus is predominant

Lebowitz D et a. Int J Infec Dis 2017



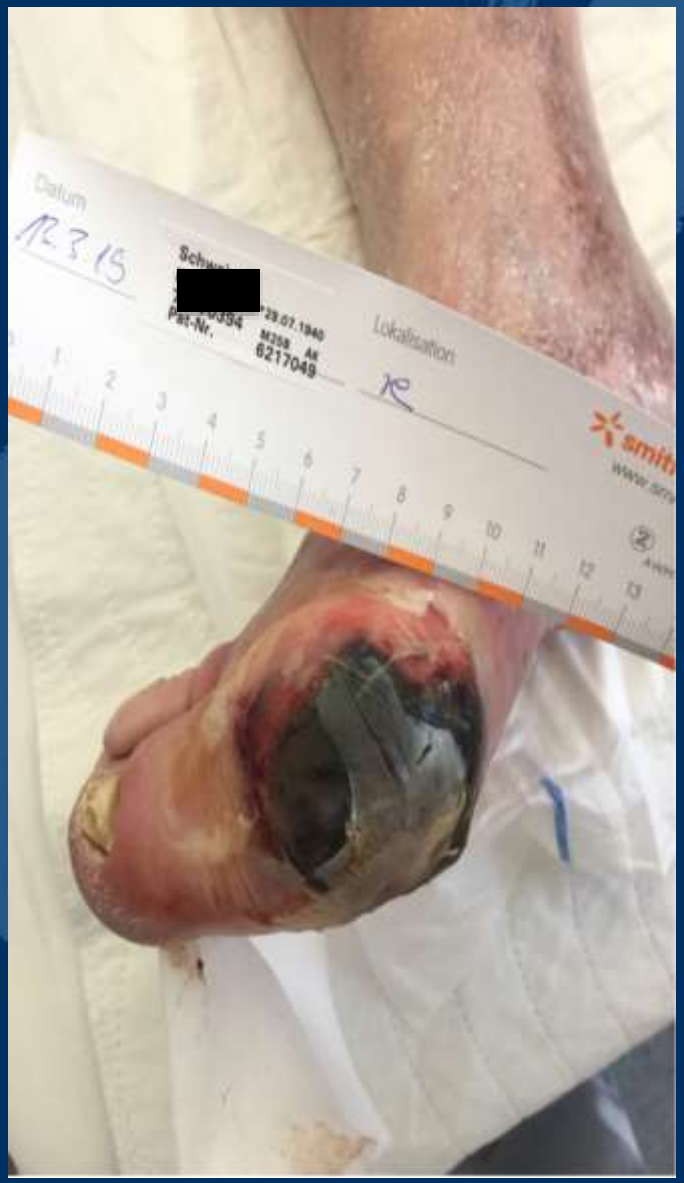
mild infection 28,3 %

Aragon-Sanchez J et al. Int J Low Extrem Wounds 2011

Osteiitis 25 – 50 %

conservative treatment (offloading and antibiotics) are in limited osteomyelitis superior to surgical approach or amputation

Aragon-Sanchez J et al. Diab Foot Ankle 2016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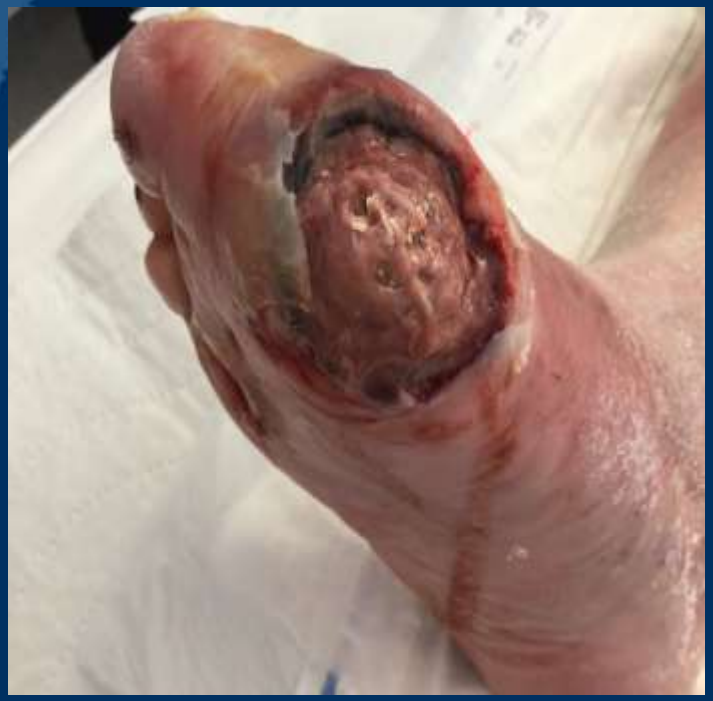
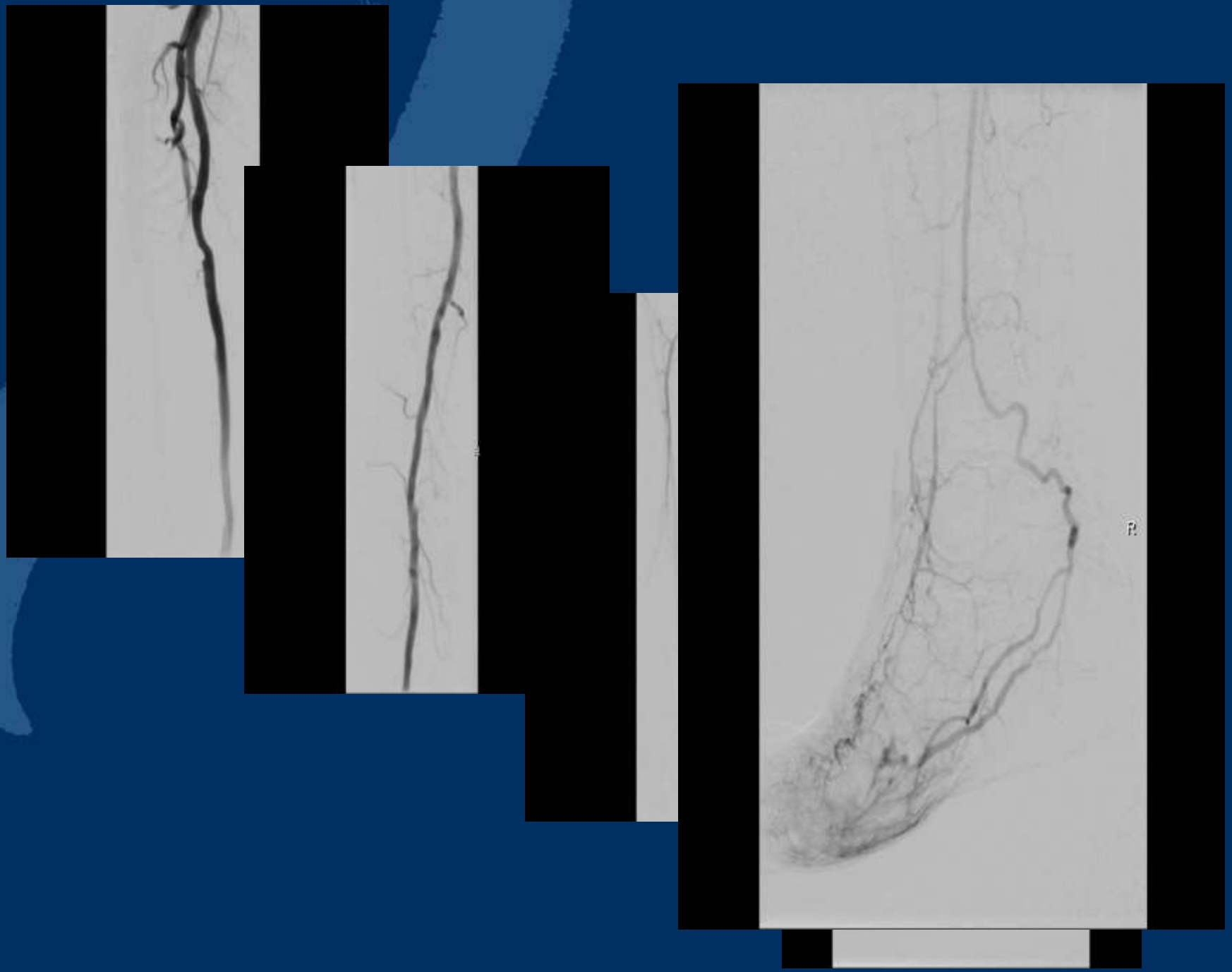
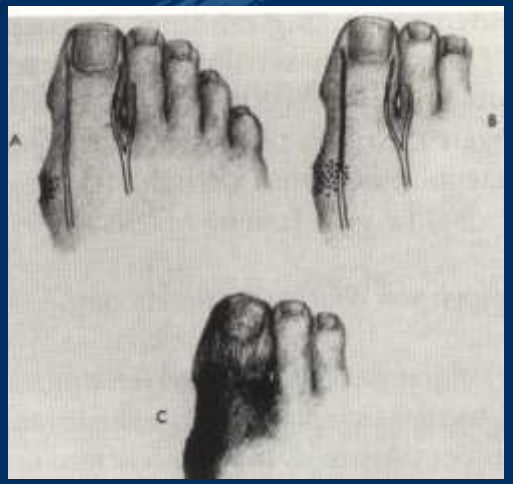
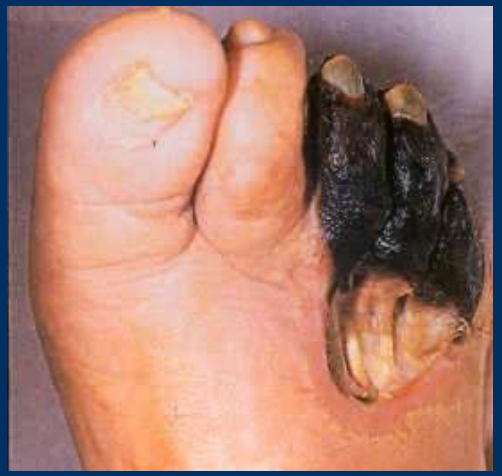


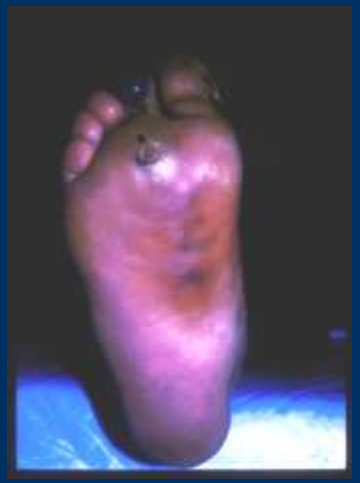


DFI : don‘t overlook septical arterial thrombosis

- typical clinical signs are often missing
- rapidly transformation into necrosis







Findlow J et al. Diabetes Care 2001

Tailor therapy based on microbiological results and clinical response

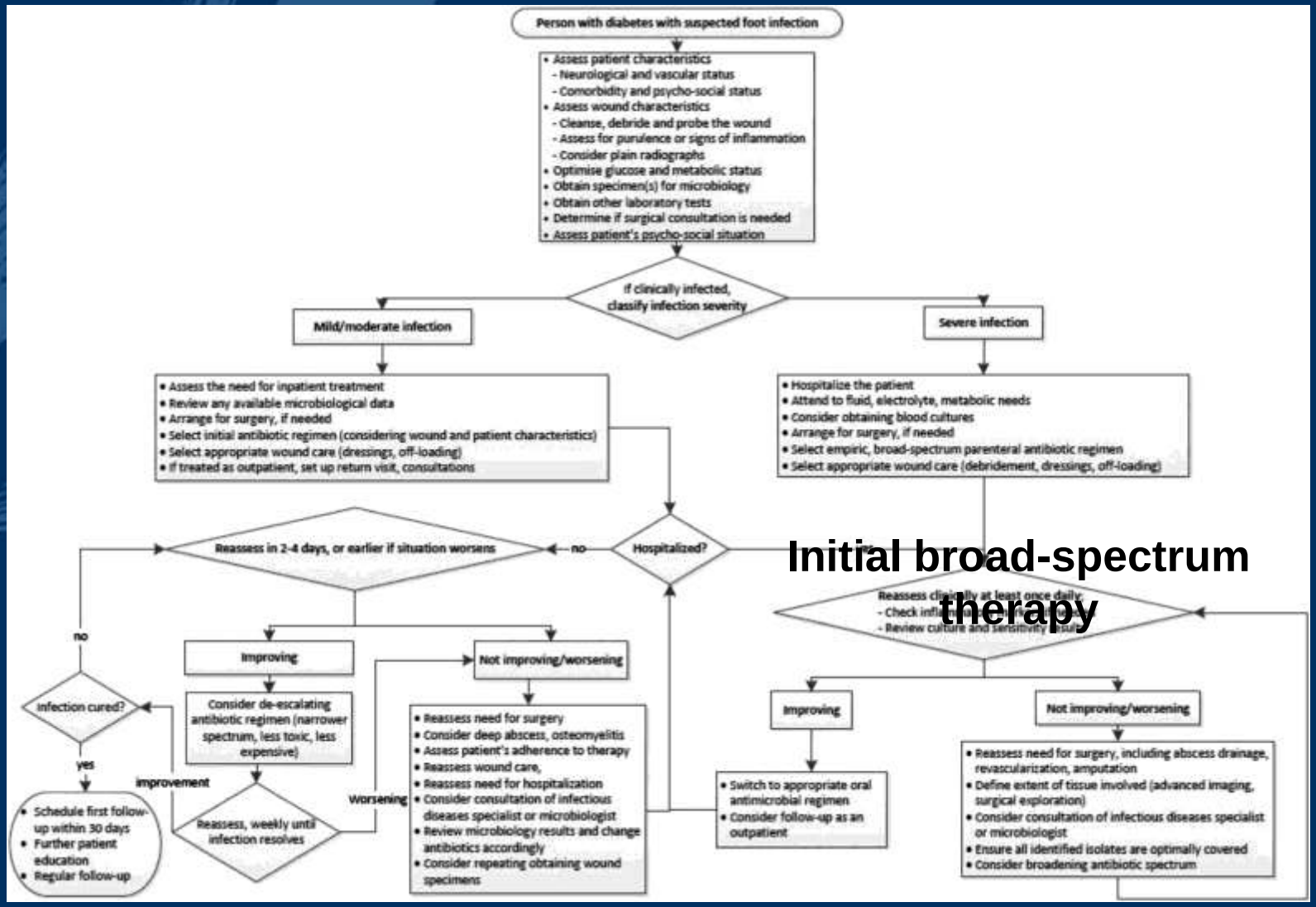
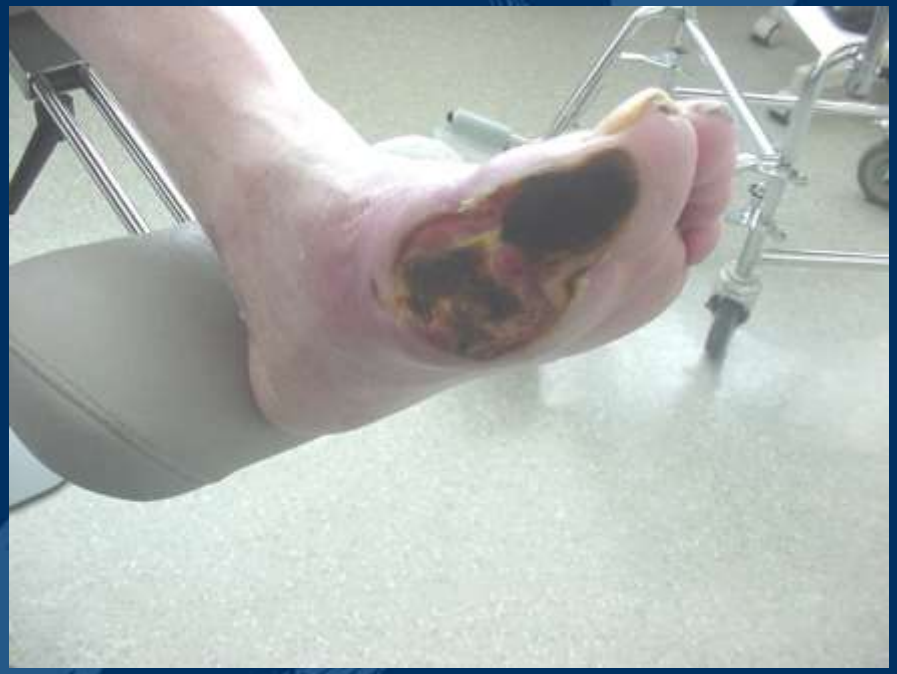
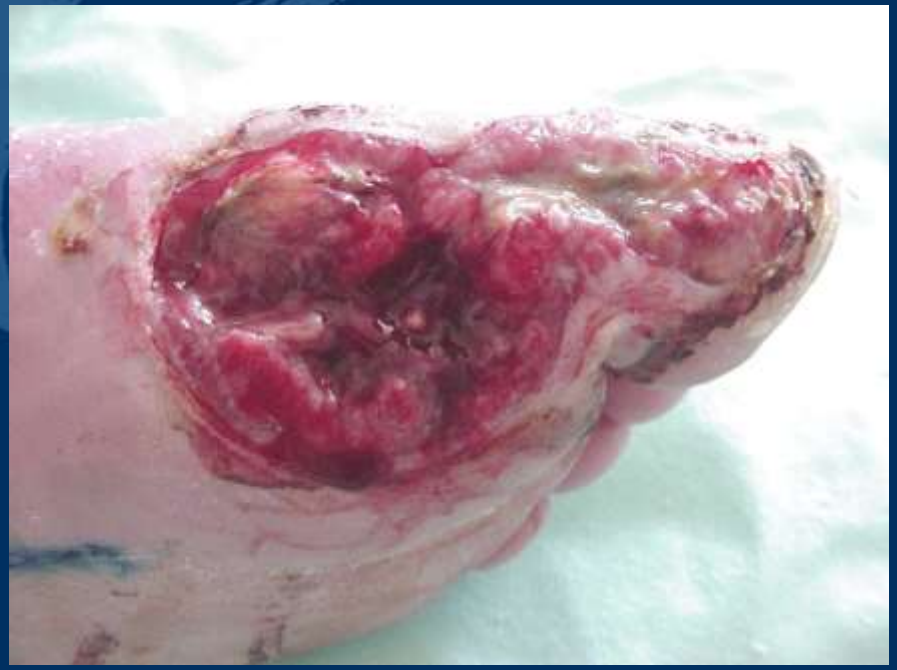
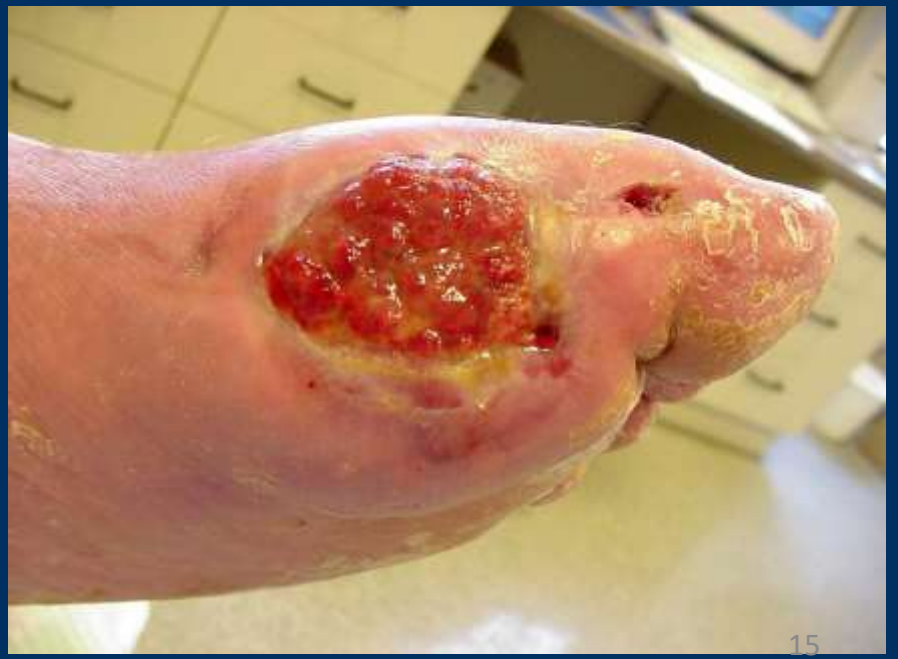


Figure 2. Algorithm overview of the approach to the patient with diabetes and a foot infection

Lipsky BA et al. Expert opinion on the management of infections in the diabetic foot. Diab Metab Res Rev 2019

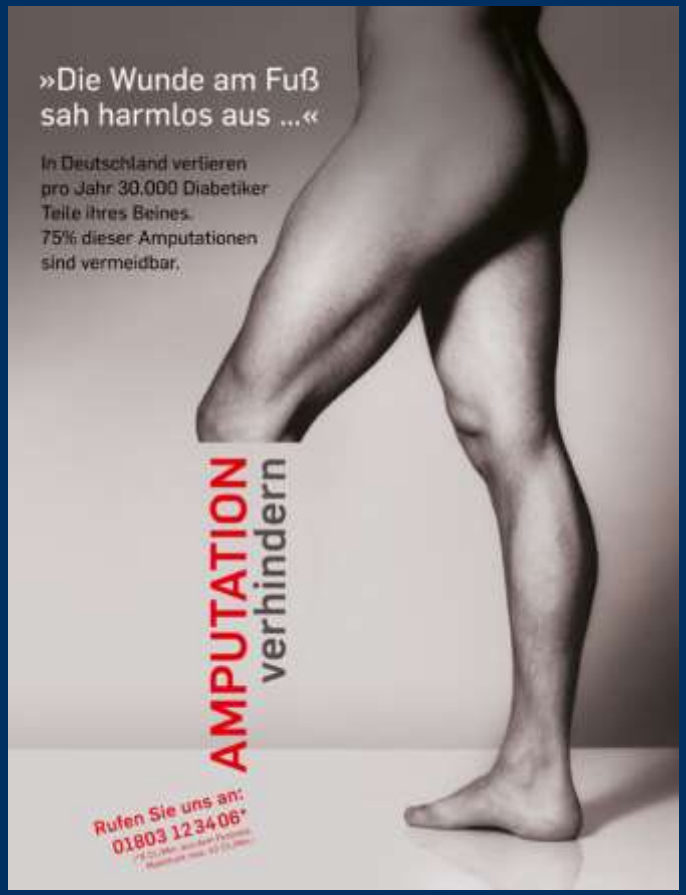






Are there any questions ?

Antibiotics do not heel the ulcer, they are usefull in case of bacterial infections !



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