



*National Institute for
Health and Clinical Excellence*

Infective endocarditis

BCCA Manchester 2014

Sheena Vernon MSc
Clinical nurse Specialist
Adult Congenital Heart Disease
Bristol Heart Institute



Bristol Heart Institute





Background

Infection of the lining of the heart.

Rare condition, certain cardiac conditions at risk.

Life-threatening disease with significant mortality (20%-25%) and morbidity.

‘Platelet-fibrin-bacteria mass’ (*Marie 1987*)



Incidence

Notifiable disease on CCAD

1500 cases of endocarditis per year in UK

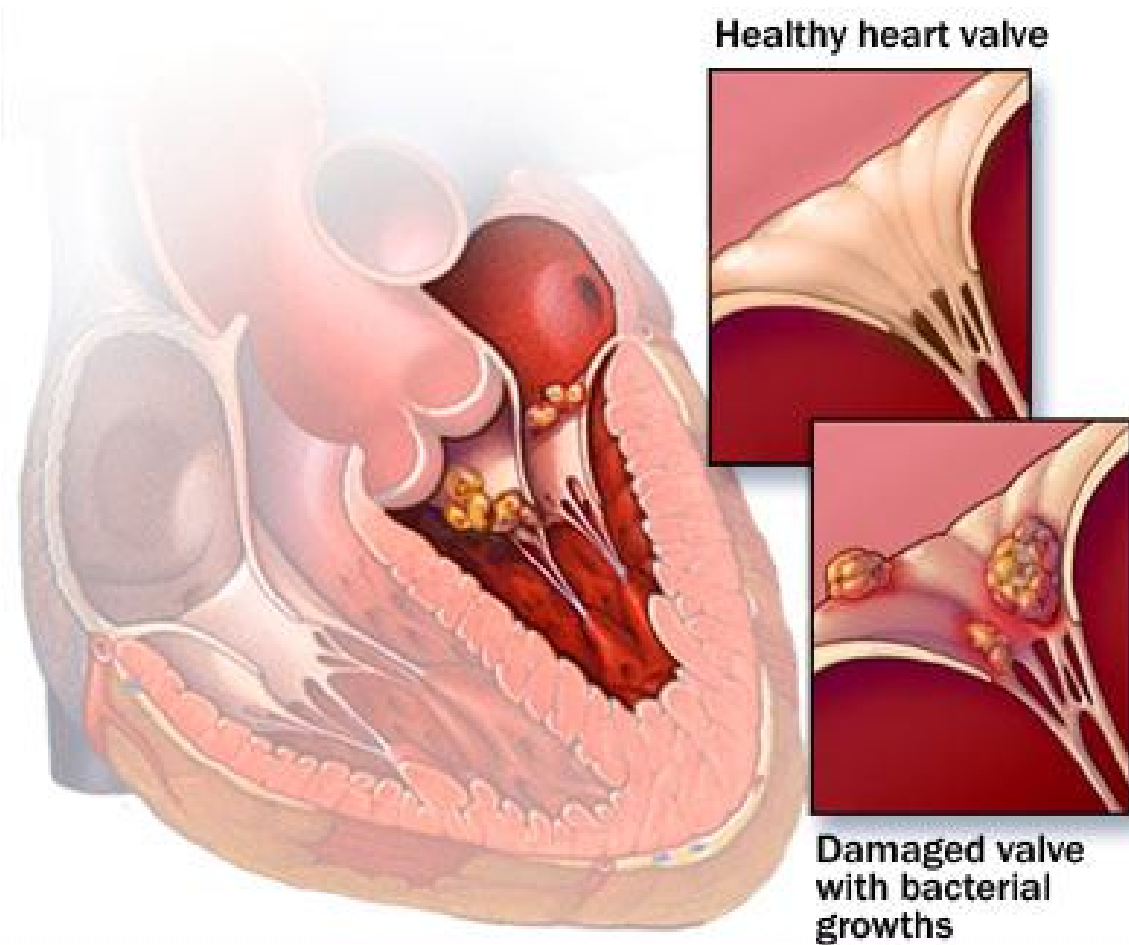
1885 first account Osler

Only 40% have identifiable predisposing event



Swanton (1998)


Pathology



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Structural cardiac conditions that make adults and children at risk

- acquired valve disease with stenosis or regurgitation
 - valve replacement
 - congenital heart disease high risk
 - hypertrophic cardiomyopathy
 - previous endocarditis
- 



Congenital Heart Disease

1 in 145 live births


40 lesions

8 common lesions


17% have a recognised syndrome



Common Lesions



Ventricular septal defect	30%
Atrial septal defect	10%
Patent ductus	10%
Pulmonary stenosis	7%
Coarctation	7%
Aortic stenosis	6%
Tetralogy of Fallot	6%
Transposition of the Great Arteries	4%
Other	20%



*Gatzoulis and Swan
et al 2005*



Risk of I.E.

Lesions may be low, medium or high risk

Low risk ASD, repaired PDA +VSD, ccTGA, Ebsteins, PPM, ICD

Medium risk VSD, Fontans, coA, valve disease, HCM, sub-AS,

High risk all prosthetic valves, prev endocarditis, complex CHD with cyanosis, VSD, aortic stenosis, BAV

Increased Risk

Surgical, cardiology dental, procedures

Piercing, tattoos

Acupuncture

Minor injuries

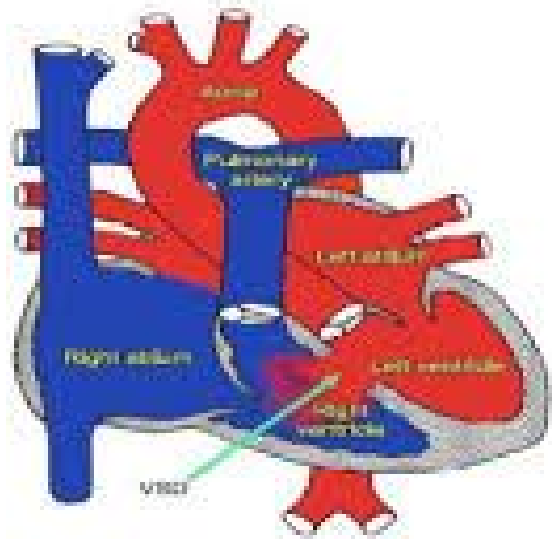
Acne, nail biting

Childbirth and intrauterine devices

IVDU

ESC 2010 AHA 2008





Large VSD

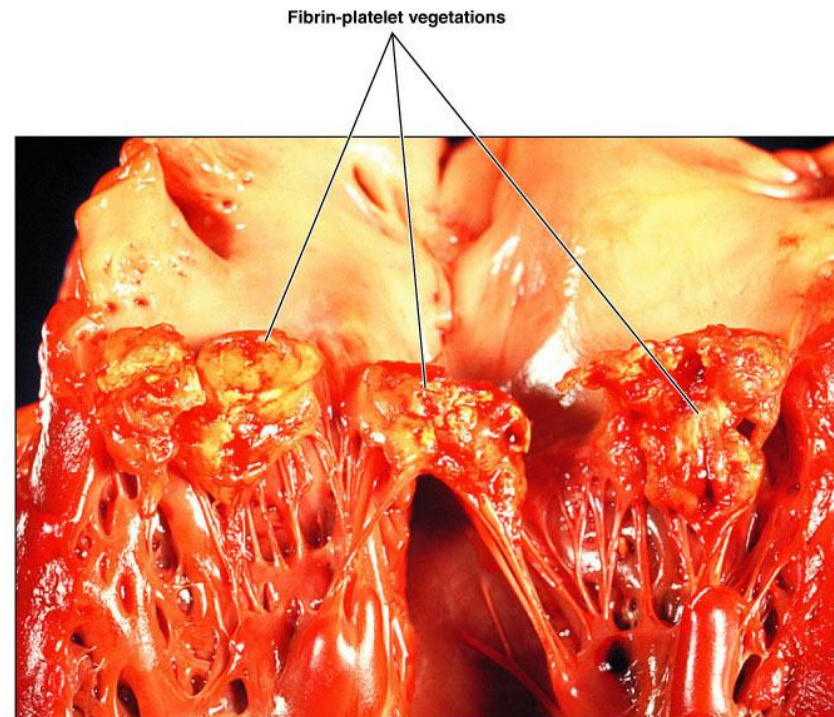
Pathology

Valves, endocardium, septal defects

Lesions from altered blood flow/trauma/platelets/fibrin

Commonly aortic and mitral area

Vegetations vary in size and colour



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Microbiology

Streptococcus and staphylococcus

Streptococcus viridans

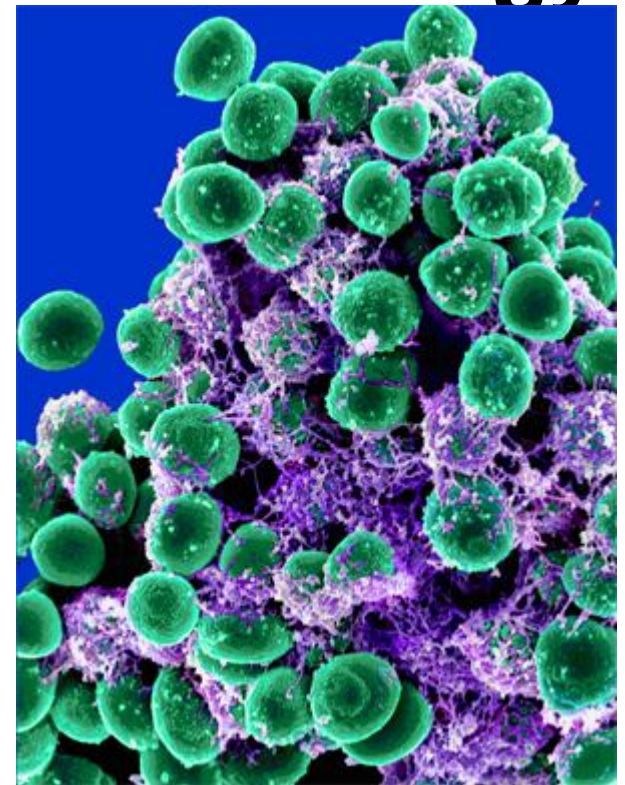
Staphylococci

Enterococci

Penicillin-resistant streptococcus

Fungi

HACEK





Clinical Presentation

May affect any organ

Flu like symptoms, temperatures may vary

Fever, sweats, chills, anorexia, fatigue, weight loss, joint pain

O/E Heart murmur, splenomegaly, mucosal, skin and retinal changes.

1/3 will present with a stroke, TIA or brain abscess

Signs of heart failure

PE

Clinical Presentation

Infection can progress

Bacteraemia, micro-organisms in blood stream

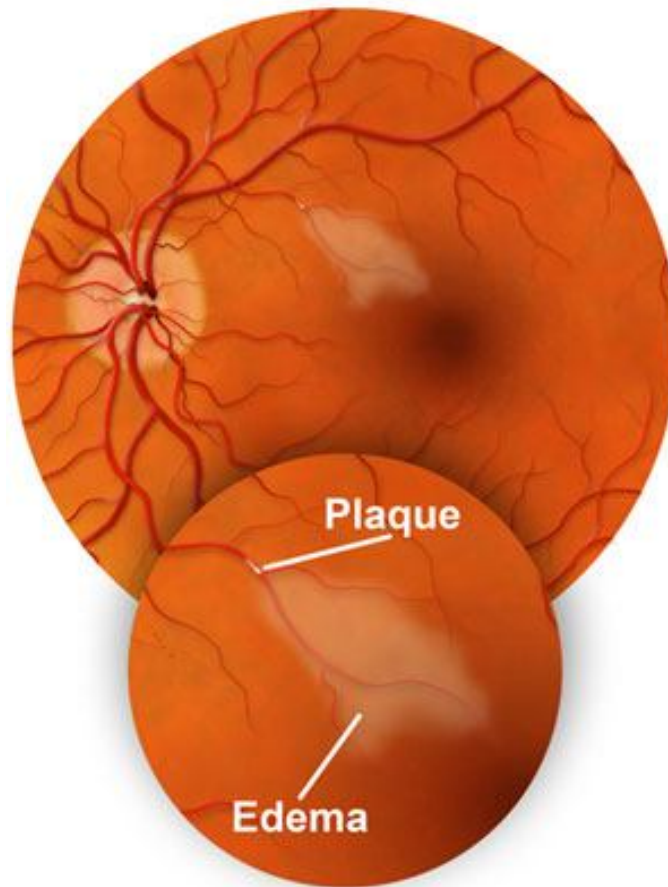
Local infiltration, necrosis of valve, aneurysm

Embolism=vegetations

Immune complexes??



Branch Retinal Artery Occlusion



Immune Complexes

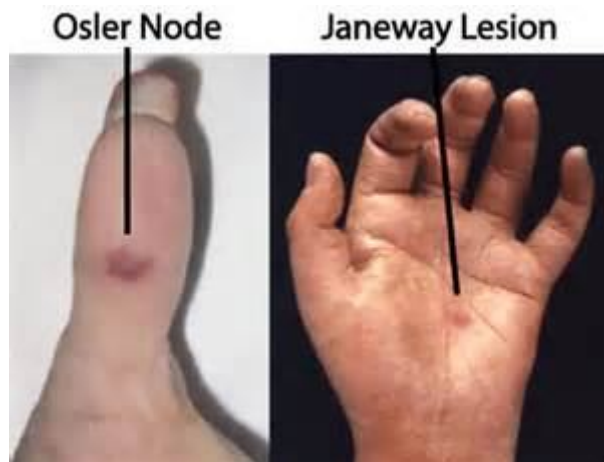
Antibody response

Glomerular nephritis

Synovitis

Vasculitis

Skin manifestations





Investigations

P.M.H. + clinical examination

Blood cultures x3 microbiology ESR

TTE - easy to miss vegetations

TOE -increases detection

ECG +CXR+ bloods+ urinalysis

CT head



Complications

Staphylococcus aureus virulent and aggressive

CCF, LVF, renal failure in severe AR

Heart block/ root abscess

Intracranial aneurysm due to infective emboli lodging in cerebral artery, rare 1-2%

Cerebral abscess

Treatment

Sterilize the vegetations PICC line

Surgery

Remove infected tissue, purge and seal abscess cavities, close fistulas, remove mobile vegetations

Replace valve

Mortality high perioperatively



Nursing

Anti-biotics administration

Physical care

Psychological support

Prolonged stay in hospital

Education

Home Intra-venous anti-biotic therapy HIVAT



Prevention

Education

Risks

Symptoms

Investigations

Treatment, after bloods





How guidance changes practice

Pre 2008 - antibiotics **routinely** as preventative measure to people at risk of infective endocarditis undergoing intervention.

Antibiotics not proven to be effective and no clear association between endocarditis and intervention.

Recommended that antibiotic prophylaxis **no longer** offered routinely.



Other guidelines

ESC European Society of Cardiology 2004

AHA American Heart Association 2007

NICE National institute of Clinical Excellence 2008

Lack of agreement reflects lack of evidence



Eds. Thorne and Clift 2009

Do not offer

No antibiotics for:

- dental procedures
- non-dental procedures
 - G.I.
 - G.U.
 - obstetric +gynaecological including childbirth/IUD
 - upper and lower respiratory tract, E.N.T. and bronchoscopy

No chlorhexidine
mouthwash!



Advice

Clear and consistent information, including:

- benefits and risks of antibiotic prophylaxis, including explanation of why no longer recommended
- good oral health
- symptoms and when to seek advice
- risks of undergoing invasive procedures, non-medical procedures, e.g. body piercing and tattoos





Thank you

