

Abstract:-

I'm going to open eyes about devises that some of them still not use here in Libya yet and I hope to be use. Because those devises could be very helpful especially in those who aren't candidates to surgery, don't be shocked but even to those who have congenital heart disease and who develop valvular heart disease, we can easily put these devices without open surgery. Moreover could improve the mortality and morbidity rate and decrease hospital stay, unfortunately some devises still not approved but hopefully soon will be.

Introduction:-

Some people born with a defect or they develop either valvular or ischemic heart disease and they aren't candidate for open surgery, thus the scientists start to create and develop devices that help them.

In 1929 Werner Forssmann did the first right heart catheterization on himself. And in early 1940s André Cournand and Dickinson Richards introduced the diagnostic cardiac catheterization. not to forgot the selective coronary angiography was described by Mason Sones in the early 1960s. but the one who did the biggest jump was Andreas Gruentzig who pioneered the catheter based interventions, in the late 1970s.⁽¹⁾

In this poster I'm going to talk about three devises for Atrial Septal Defects, Patent Ductus Arteriosus ,Aortic Stenosis , Mitral Stenosis ,Mitral Regurgitation and still there's more but I won't talk about it.

Discussion:-

Atrial Septal Defect:-

we have to confirm and assure the size of the opening because of Morphological & Hemodynamic difficult of ASD closure by Echocardiography, either transesophageal (TEE) or intracardiac.⁽²⁾

transcatheter devices which Only use in secundum ASD for NOW by Amplatzer septal occluder (figure1) which associated with low complication rates, short anesthetic times, and short hospitalizations.

Amplatzer cribriform devices (figure2) the first two ues here in Libya but Gore-Helix (figure3) still not use. however the last two could fit a larger size septal defect, the first devices can be implanted 2 or 3 close to each other to cover a wider. and have Long-term outcomes and facility of deployment is similar to the ASO, but still limited use in USA.

The second devices not self centering so it suitable for defect diameter size of 2:1, so It is a good option for smaller defects less than 13 mm in diameter.⁽³⁾

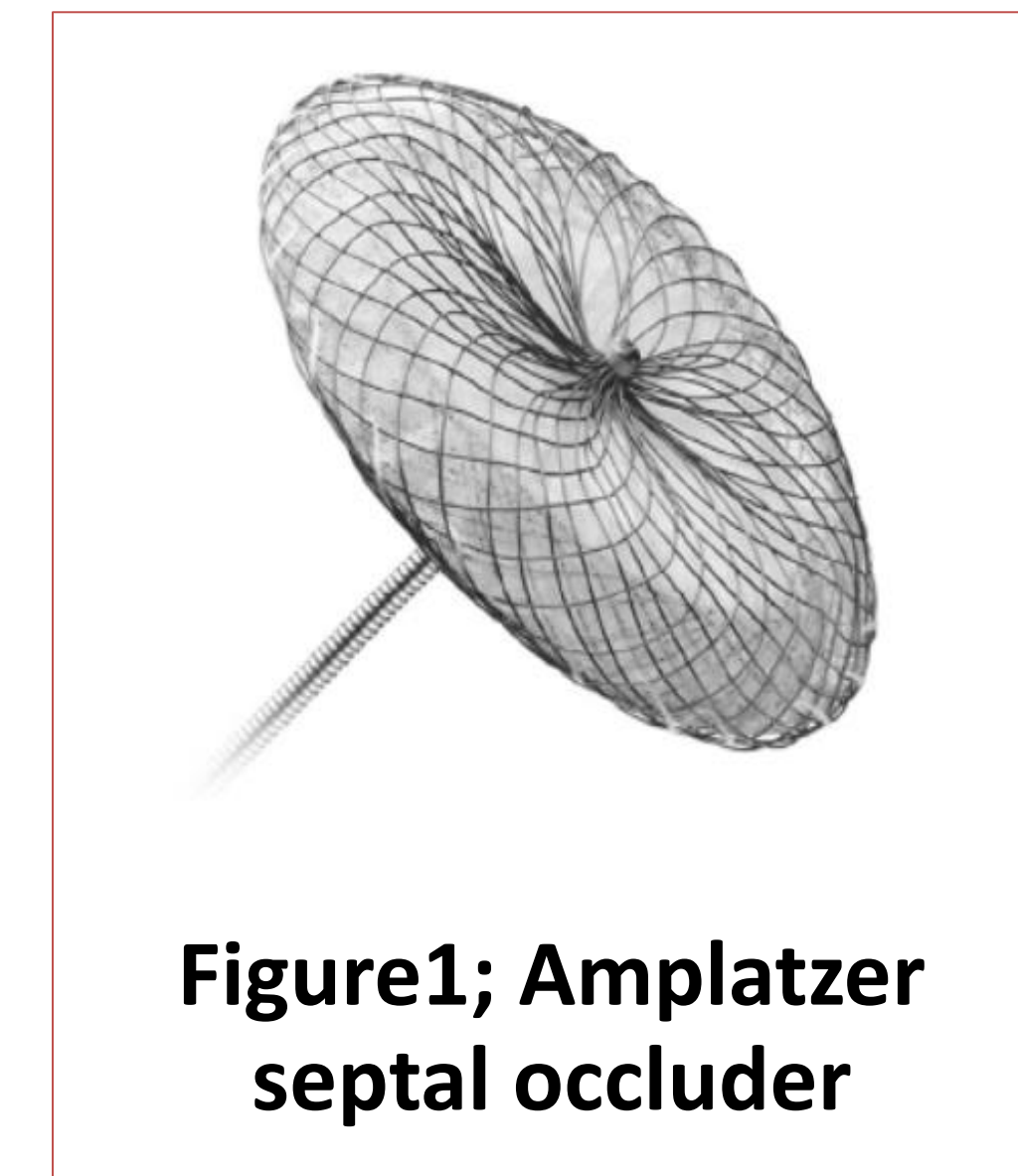


Figure1; Amplatzer septal occluder

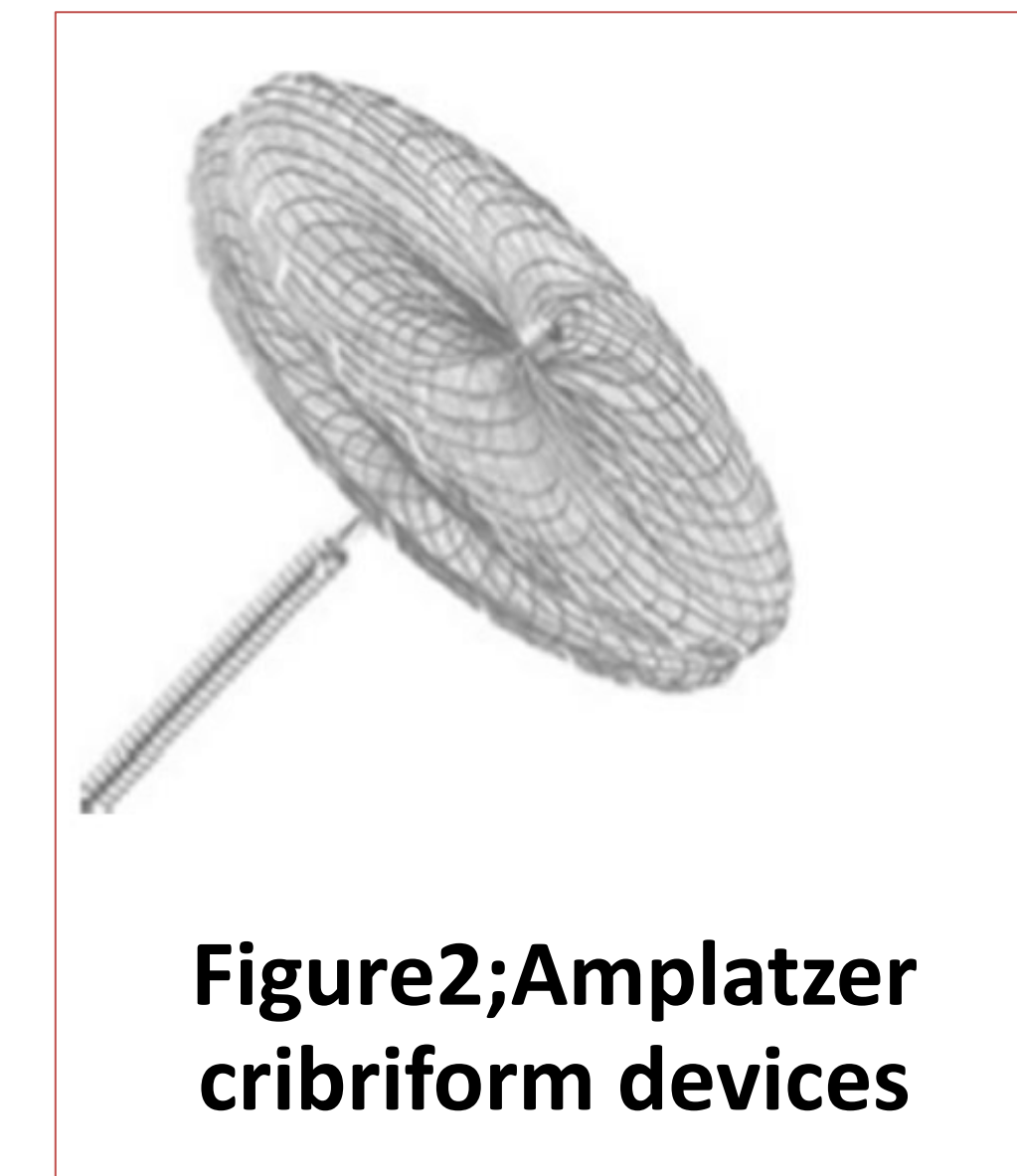


Figure2; Amplatzer cribriform devices

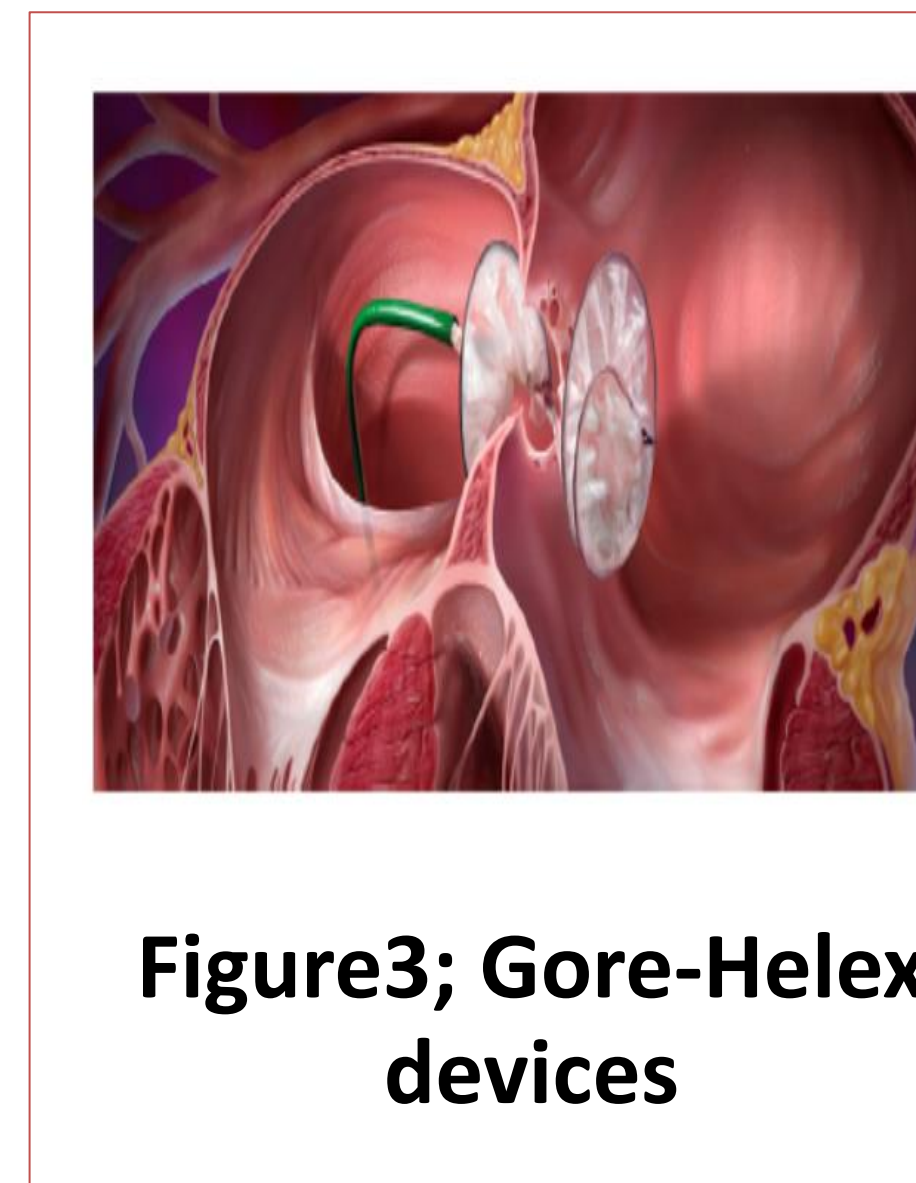
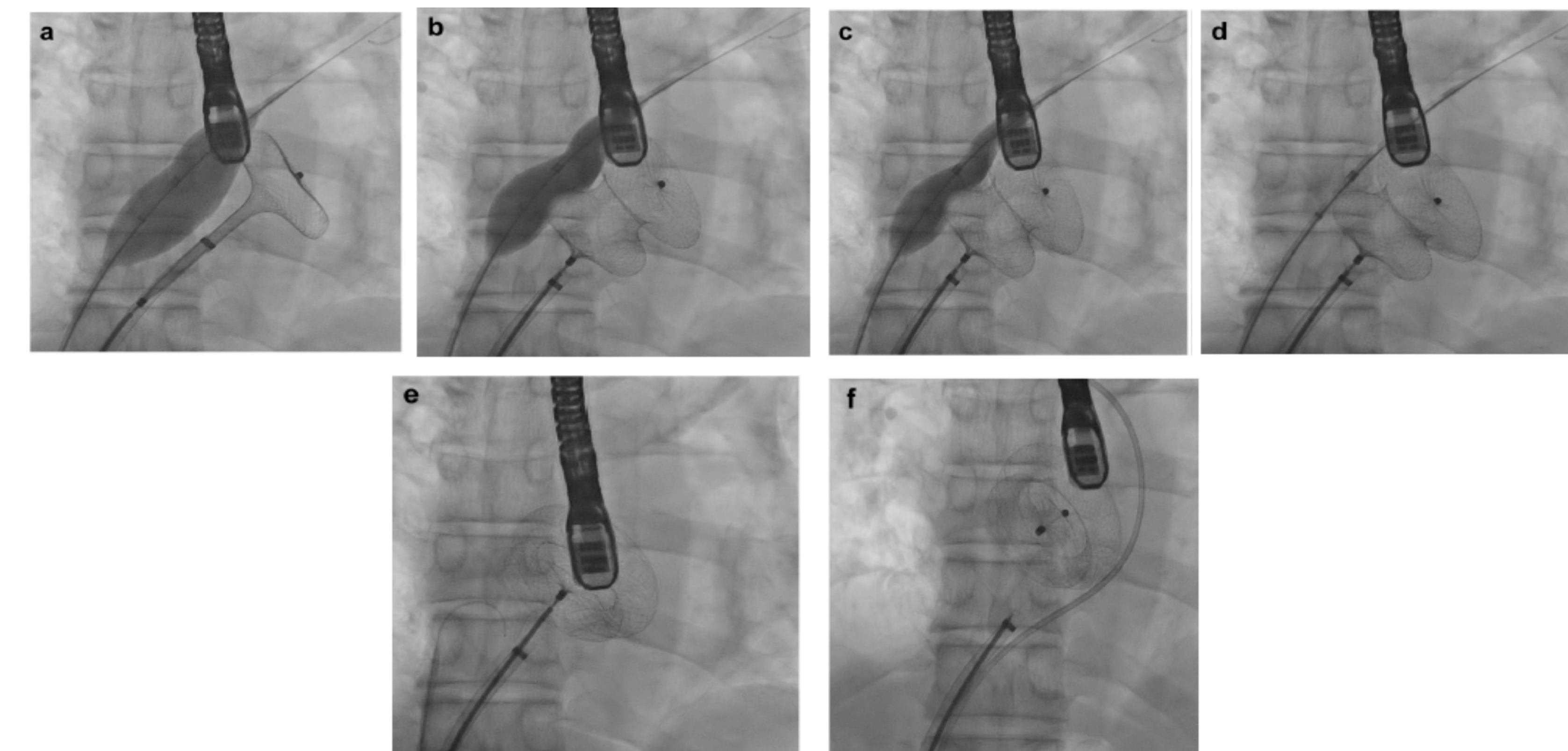


Figure3; Gore-Helix devices



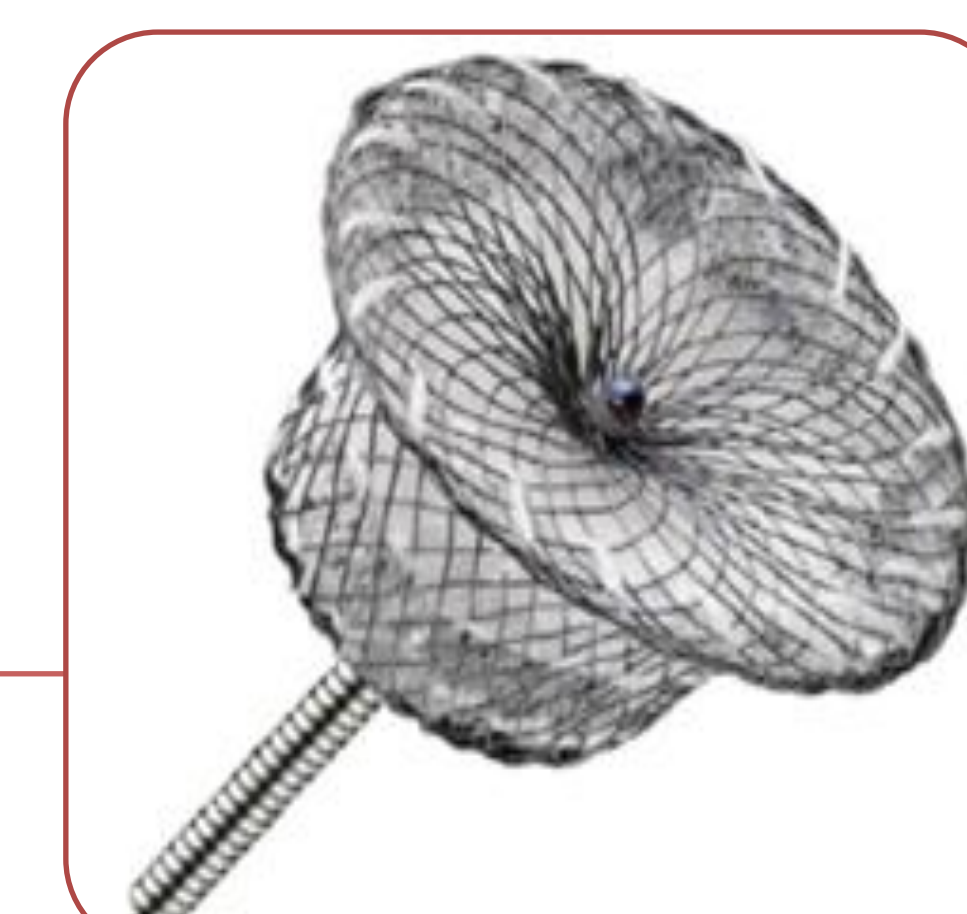
Balloon assist technique. (a) Under the assist of partial inflation of Amplatzer sizing balloon, left atrial disk of 34-mm device was opened inside the left atrium. (b) Subsequently, right atrial disk was opened inside the right atrium. (c) Sizing balloon was gradually deflated. (d) Sizing balloon was completely deflated. (e) Sizing balloon and guidewire were retrieved. (f) 34-mm device was successfully deployed.

Patent Ductus Arteriosus:-

most PDA shunts are diagnosed in childhood and treated. by Transcatheter closure can be accomplished using embolization coils such as Gianturco coils (figure4) , the Amplatzer duct occluder (figure5) simple deployment technique and high success rate with over 95% of treated patients achieving ductal closure at 6 months. the new one the Nit-Occlud device (Figure 6) still not use in libya. with an atraumatic biconical configuration and variable stiffness.⁽³⁾



Gianturco coils (figure4)



the Amplatzer duct occluder (figure5)



the Nit-Occlud device (Figure 6).

Aortic stenosis:-

The newest generation of transcatheter valves from Edwards is the Sapien 3 (figure7) This valve is being evaluated in clinical trials in the USA currently. Medtronic Corevalve (figure8) The valve get FDA approved in 2014 for patients with severe symptomatic aortic stenosis who are at high risk for surgical intervention.

The Portico valve (figure9) is deployed through an 18 French delivery sheath. Currently, only a 23 mm valve is available but a 25 mm valve is being developed.

The Direct Flow valve (figure10) is a non-metallic valve made of bovine pericardium, and a conformable expandable cuff is introduced using an 18 French sheath.⁽³⁾



(figure7) The newest generation of transcatheter valves from Edwards is the Sapien 3 .



(figure8) Medtronic Corevalve



(figure9) The Portico valve is deployed through an 18 French delivery sheath.



(figure10) The Direct Flow valve.

Mitral valve:-

First Mitral Stenosis in the past Until the early 1980s, the only option was surgical valve replacement The Inoue balloon (figure11) has made mitral commissurotomy a more stable and straightforward minimally invasive procedure It is available in three sizes that cover a range of 24–30 mm in diameter.

Second Mitral Regurgitation more common than the first, The developed MitraClip (figure12) improved safety in the transcatheter treated group primarily due to lower bleeding rates compared with surgery.

The newest one is Carillon mitral contour system (figure13) is a coronary sinus implant that consists of a proximal and distal anchor connected by a nitinol shaping ribbon. moreover has an immediate effect on MR is assessed by transesophageal echocardiography and coronary compression is evaluated before release.⁽³⁾



Figure11; Inoue balloon and hub.



Figure12; The MitraClip deployment system on left, and the clip on the right.



figure13; The Carillon mitral contour system.

References:-

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