System for Endoscopic Size Measurement and Mapping of Internal Organs, Tumors and other Features and Methods of Use Thereof

Images for US Patent Application, SN 60/733,572

Moshe Alamaro

Arie Kaufman

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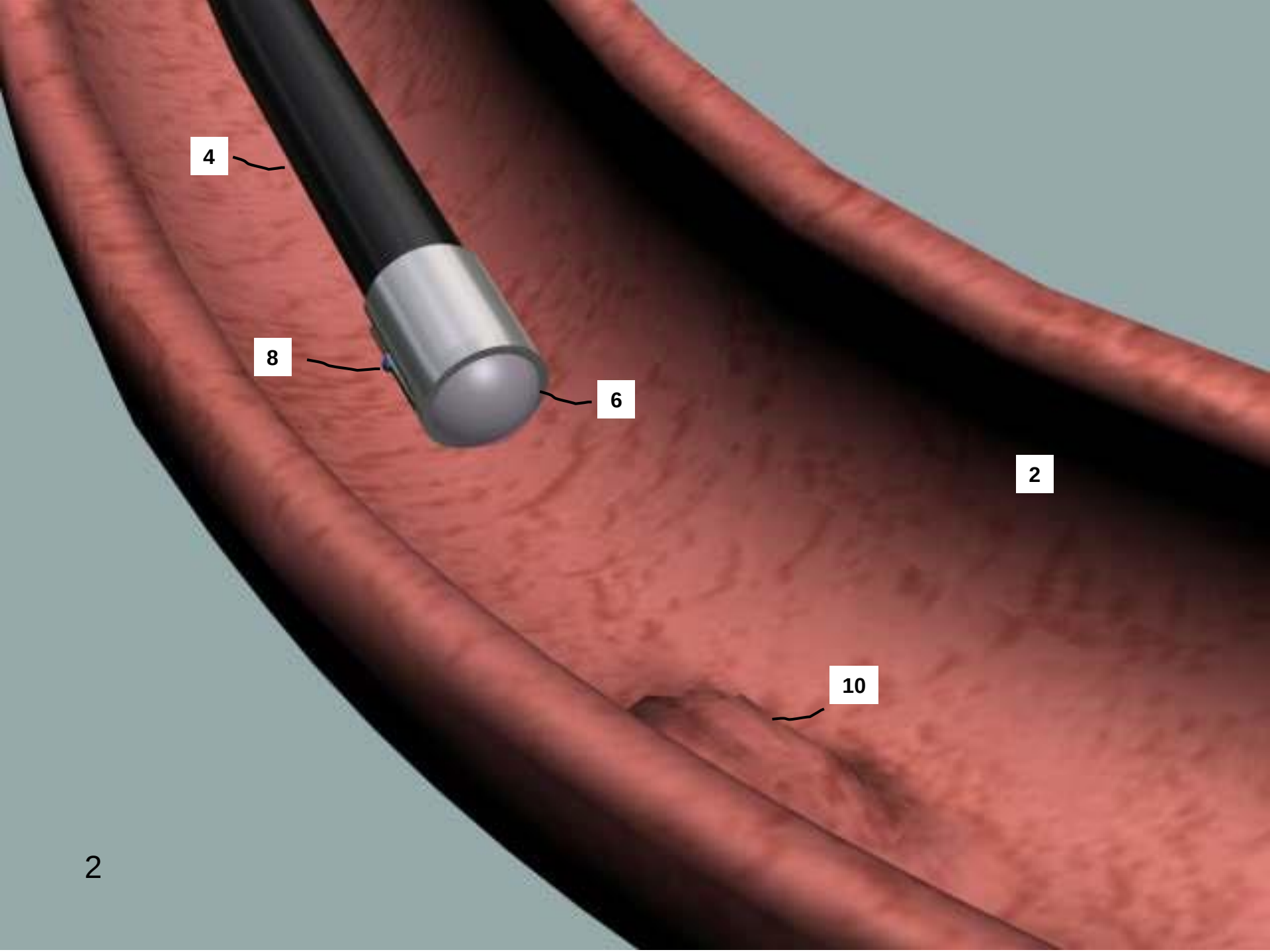
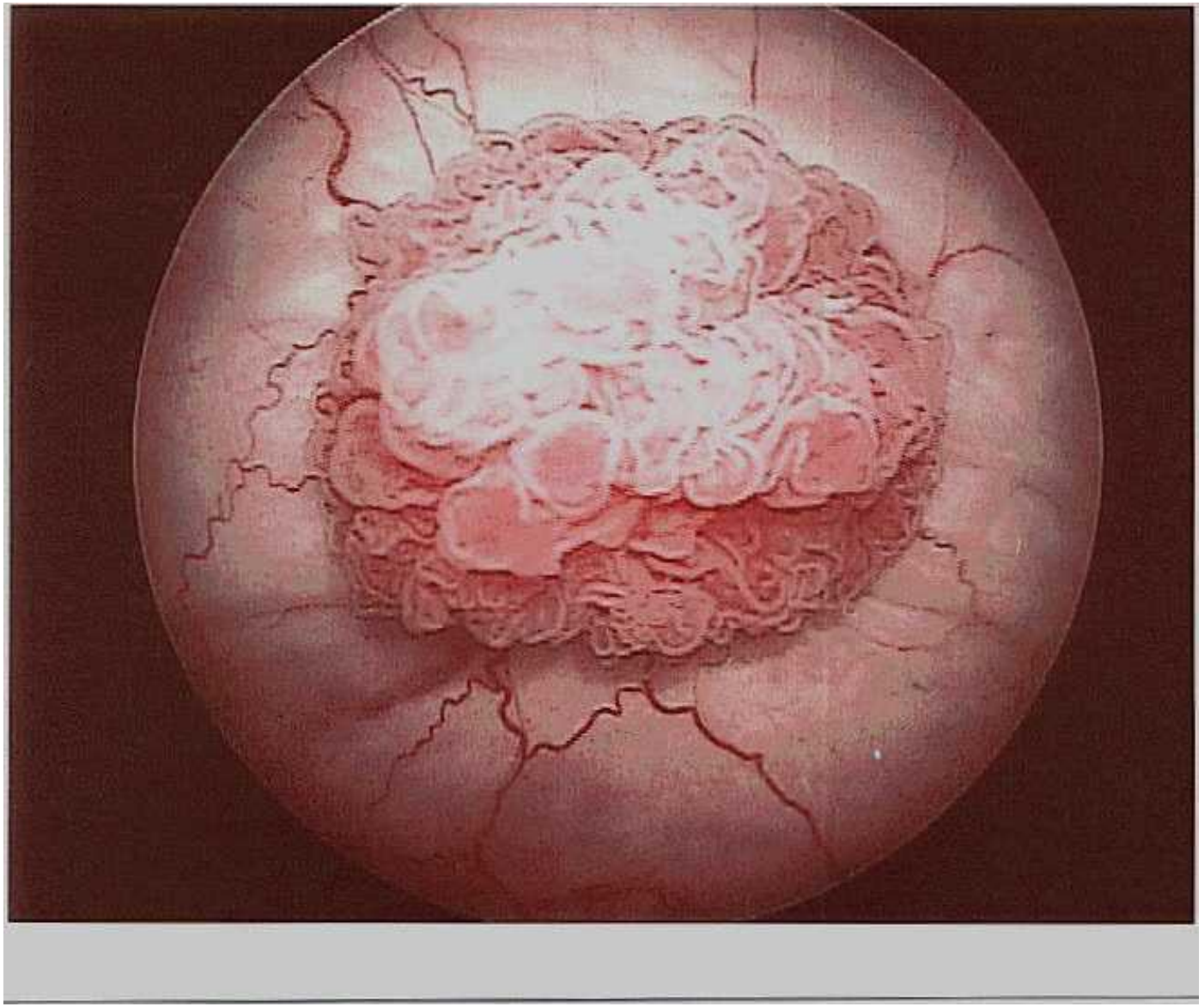
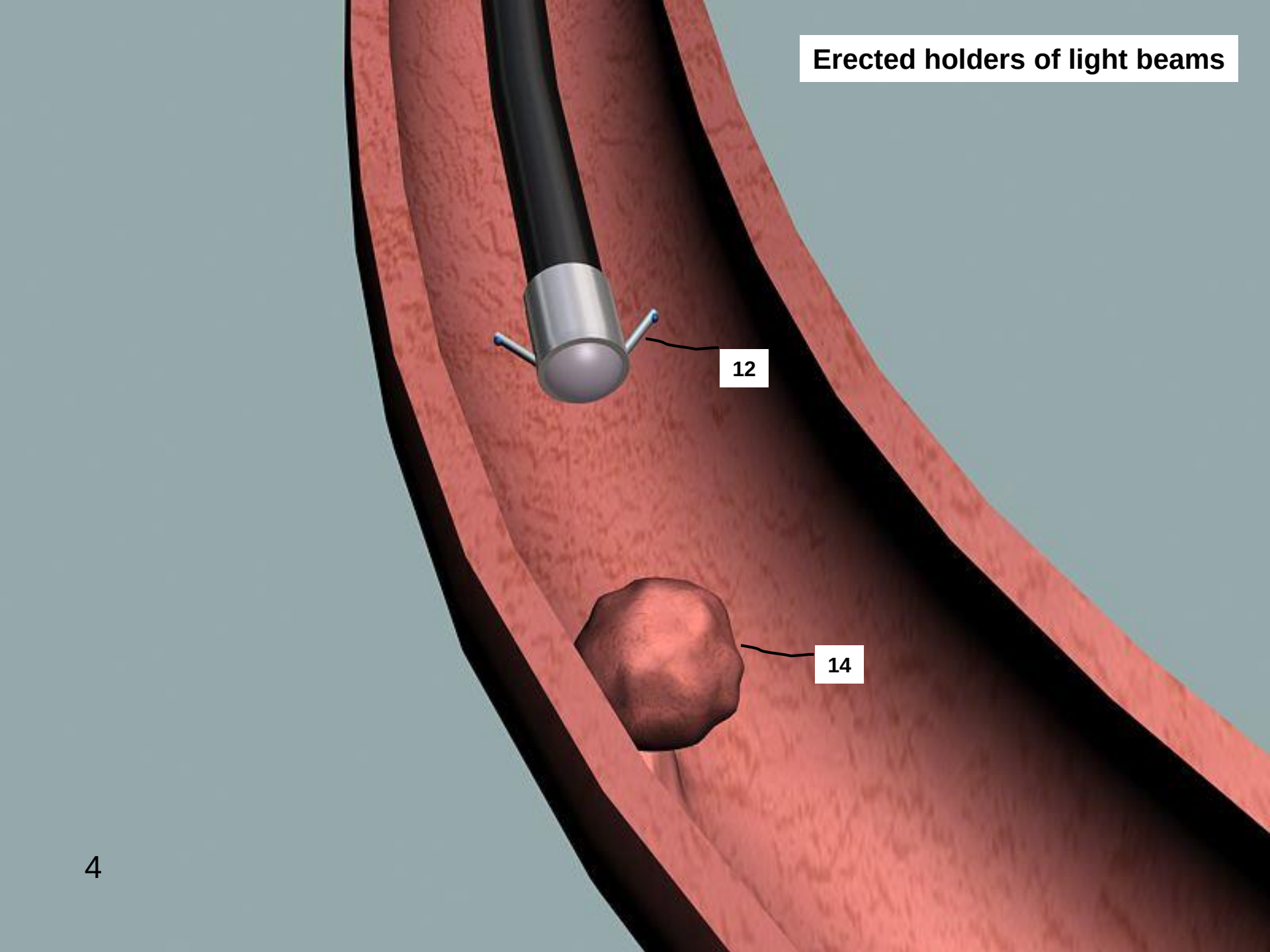

4
8
6
2
10

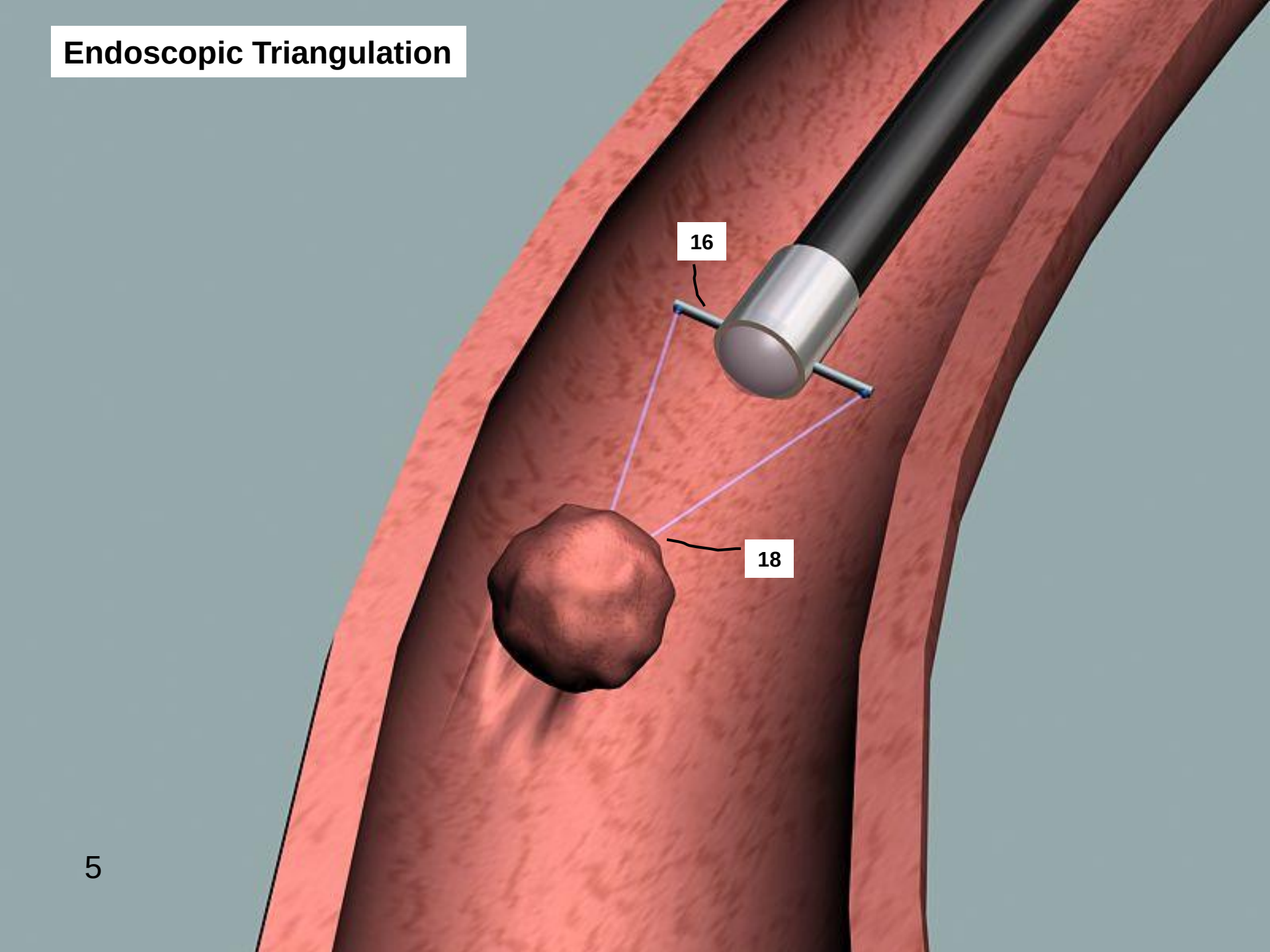


How Big is this cancerous tumor? Where is it in the bladder?

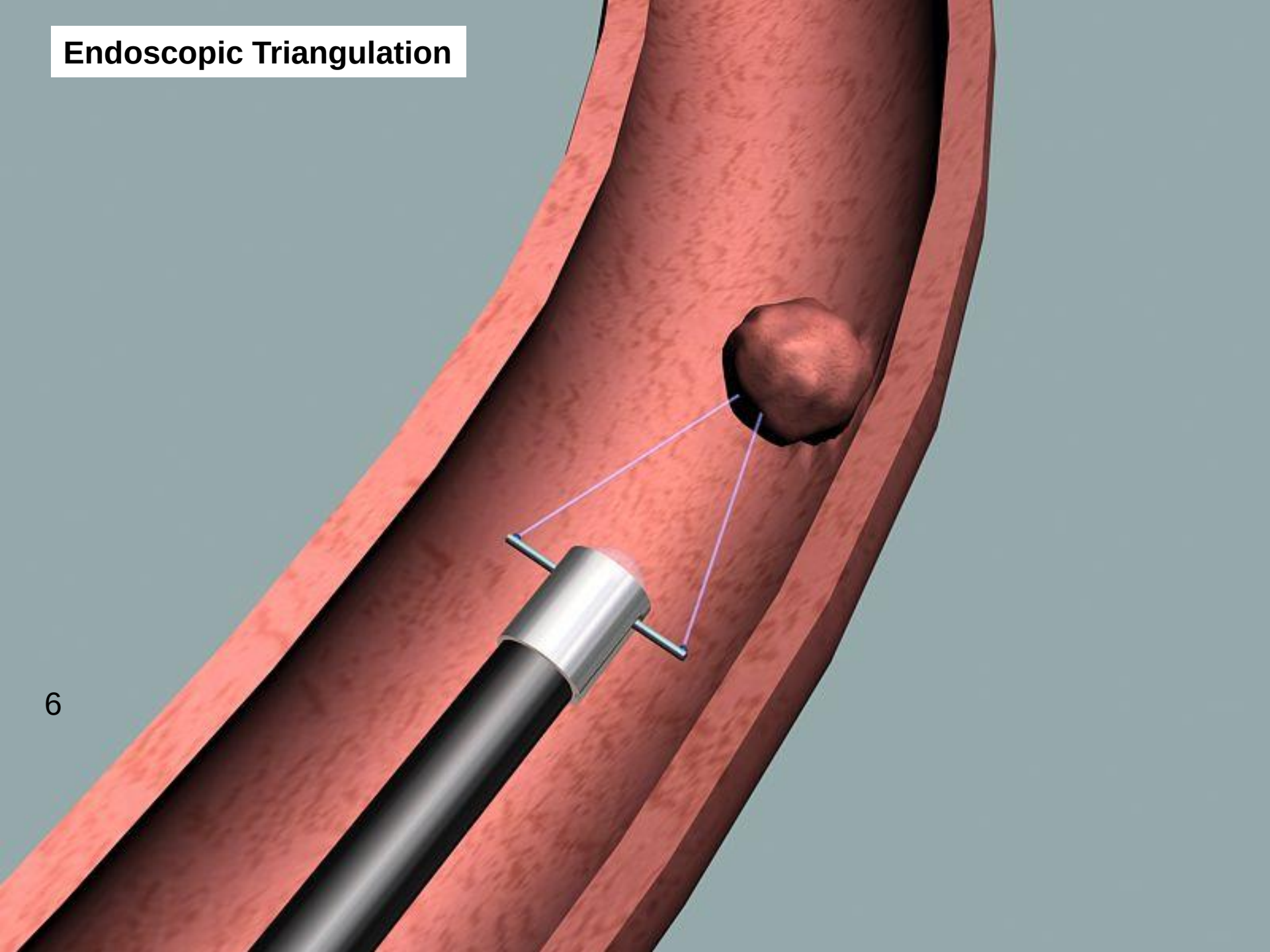
Provided by Dr. Joseph Grocela, Urology, MGH


Erected holders of light beams
12
14

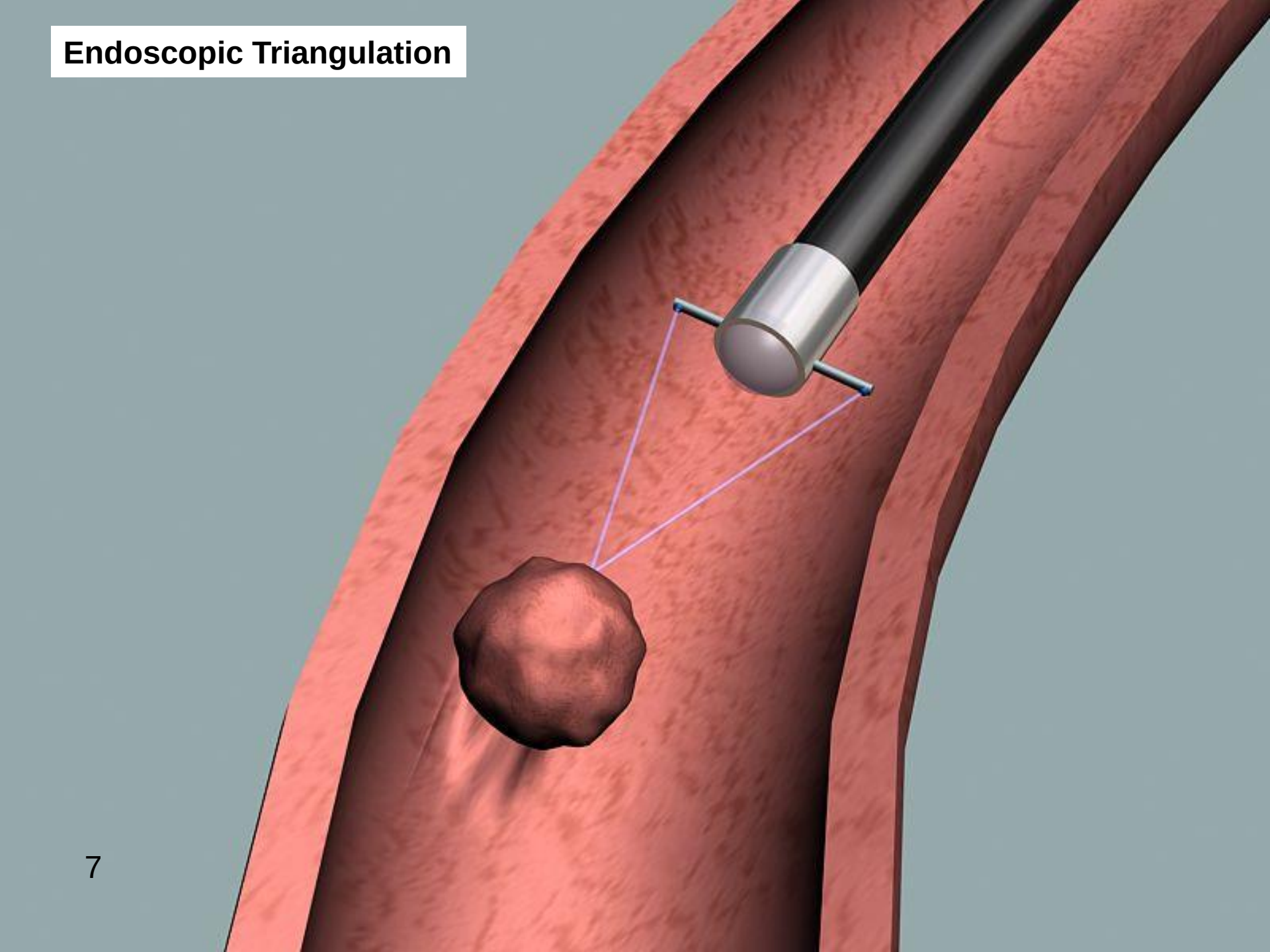
Endoscopic Triangulation



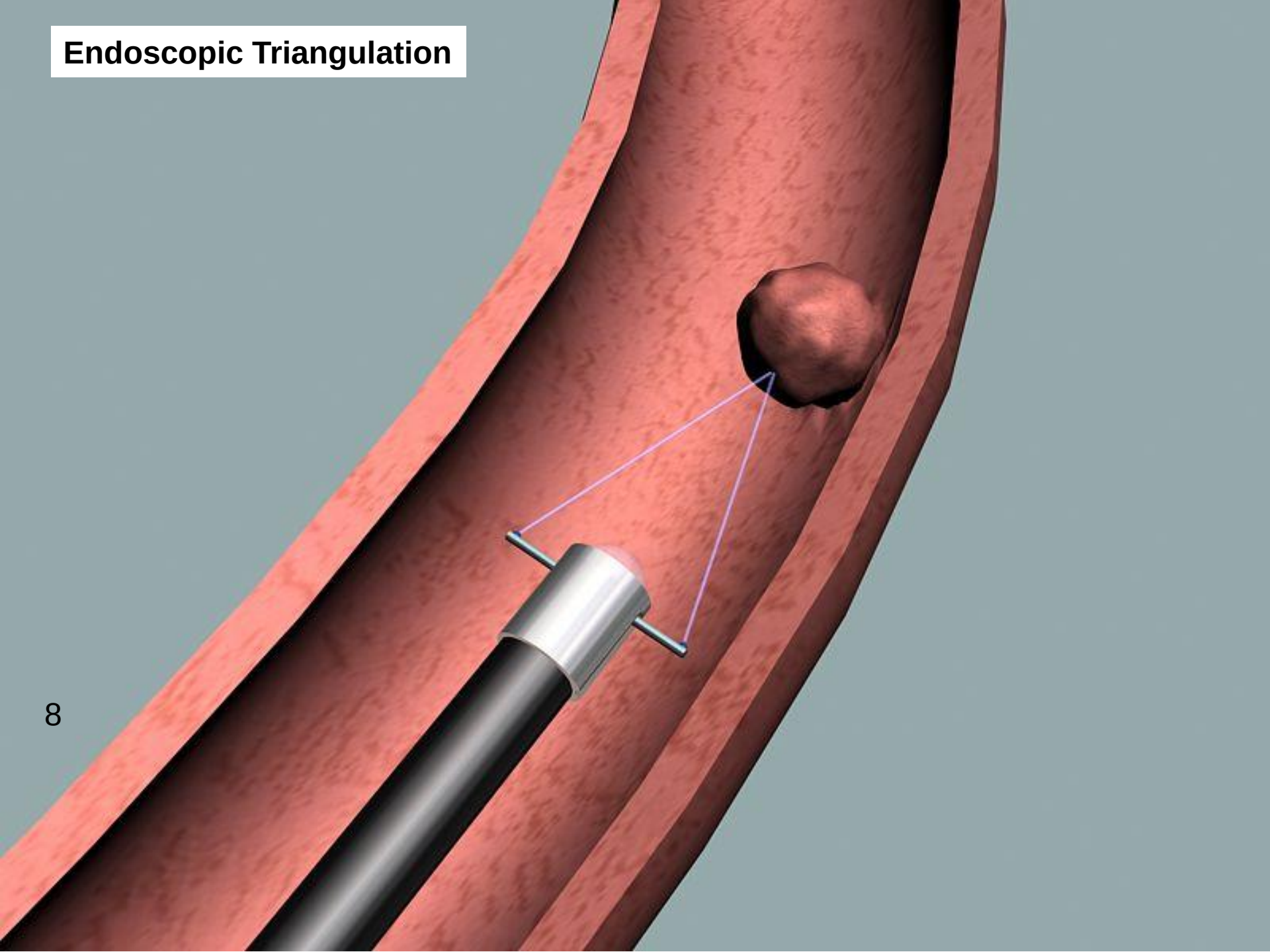
Endoscopic Triangulation



Endoscopic Triangulation



Endoscopic Triangulation



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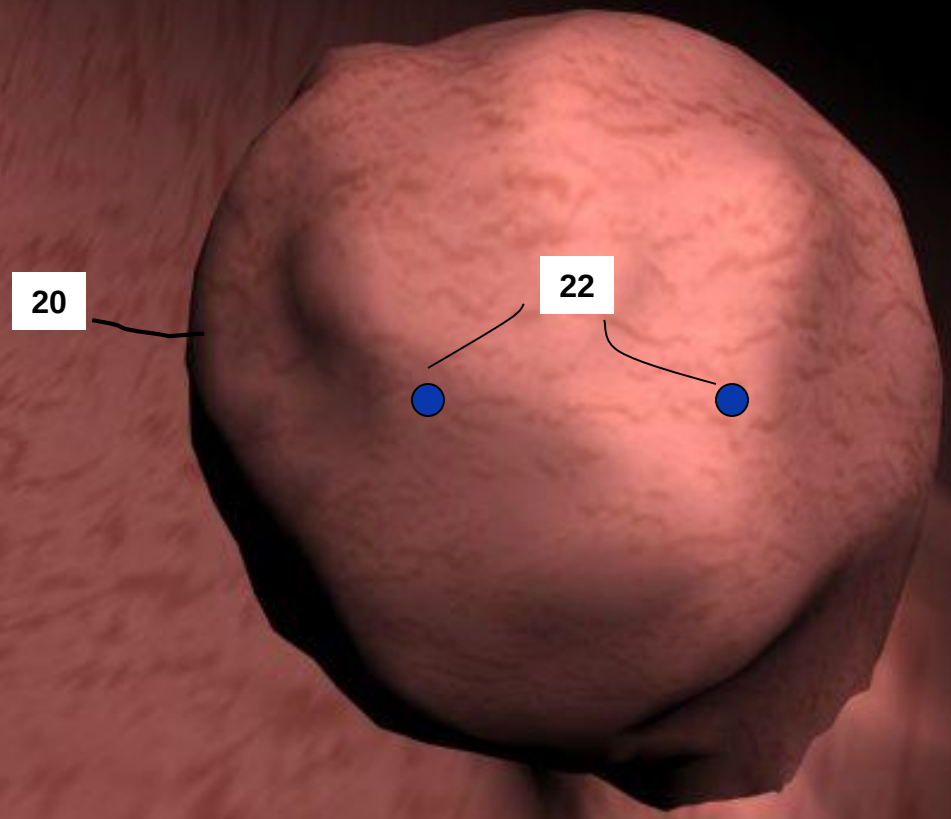

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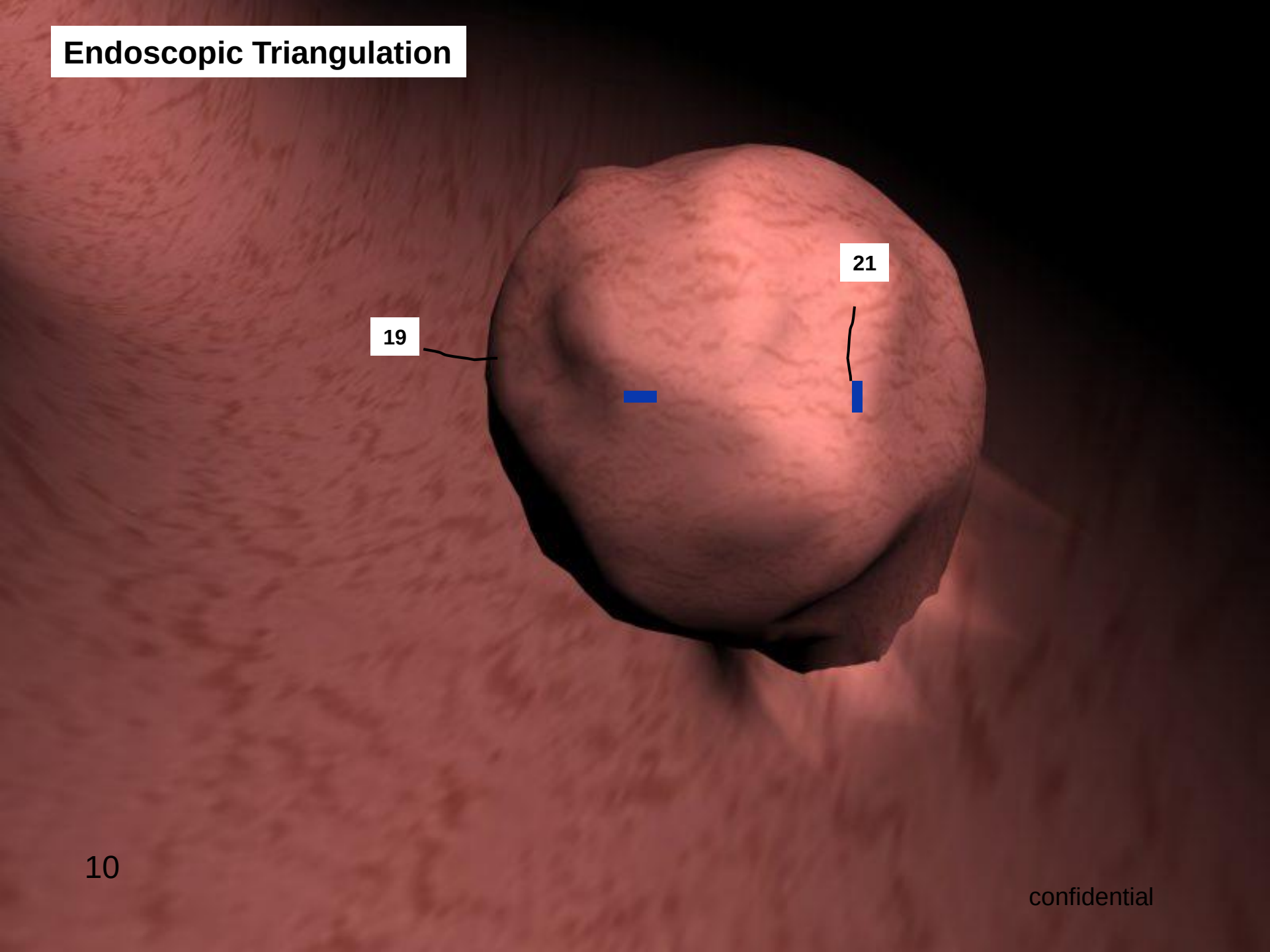

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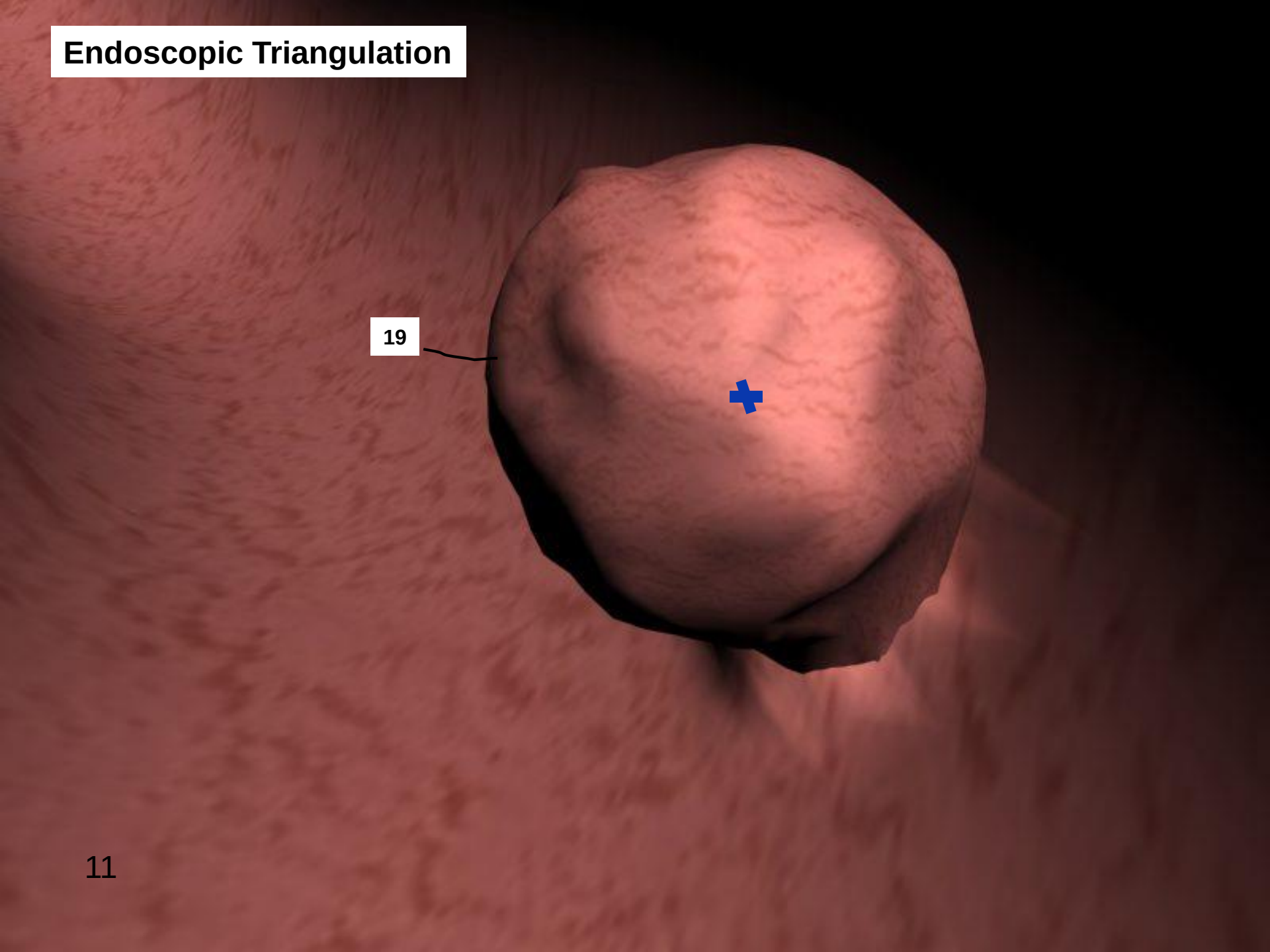

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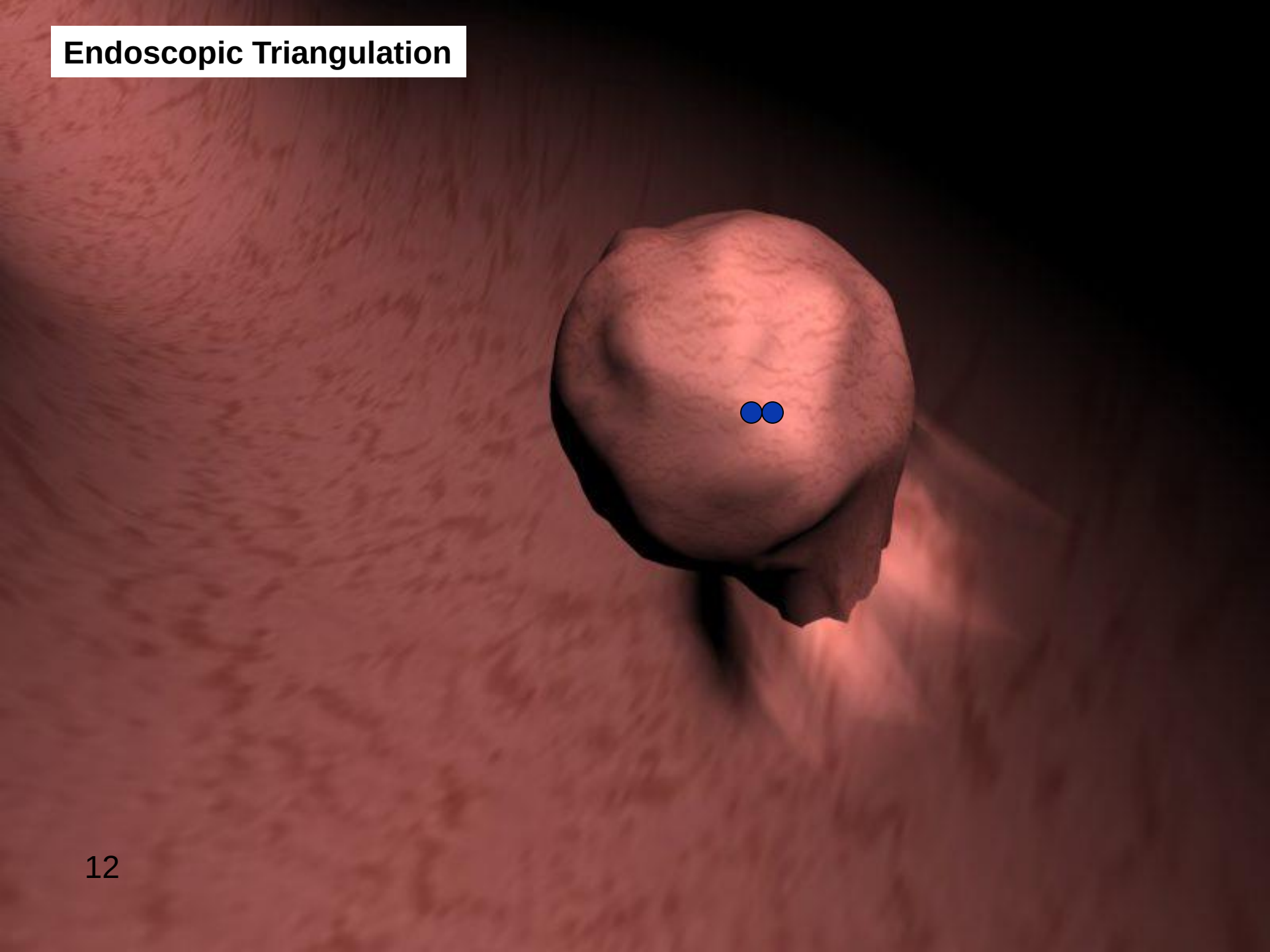

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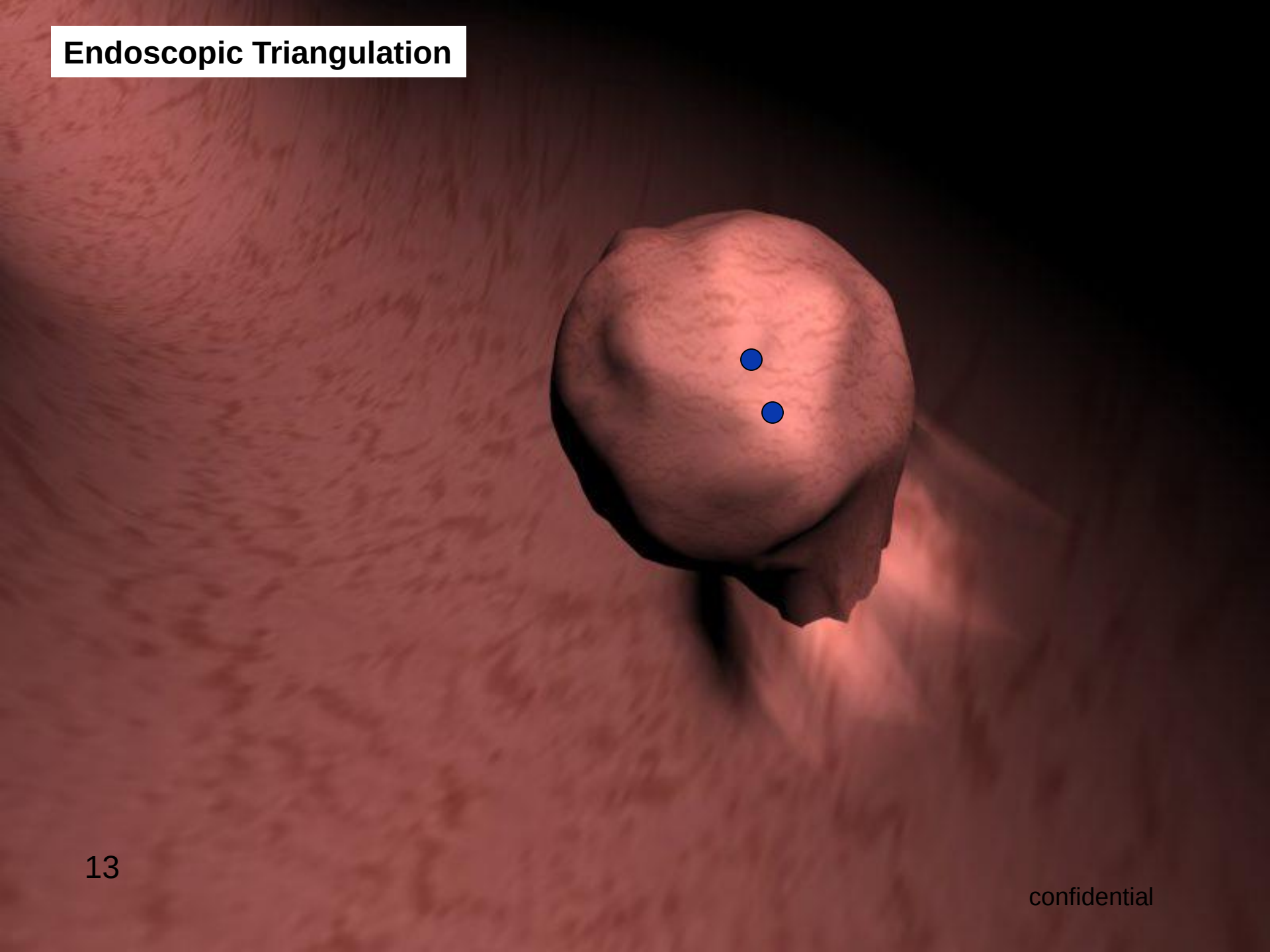
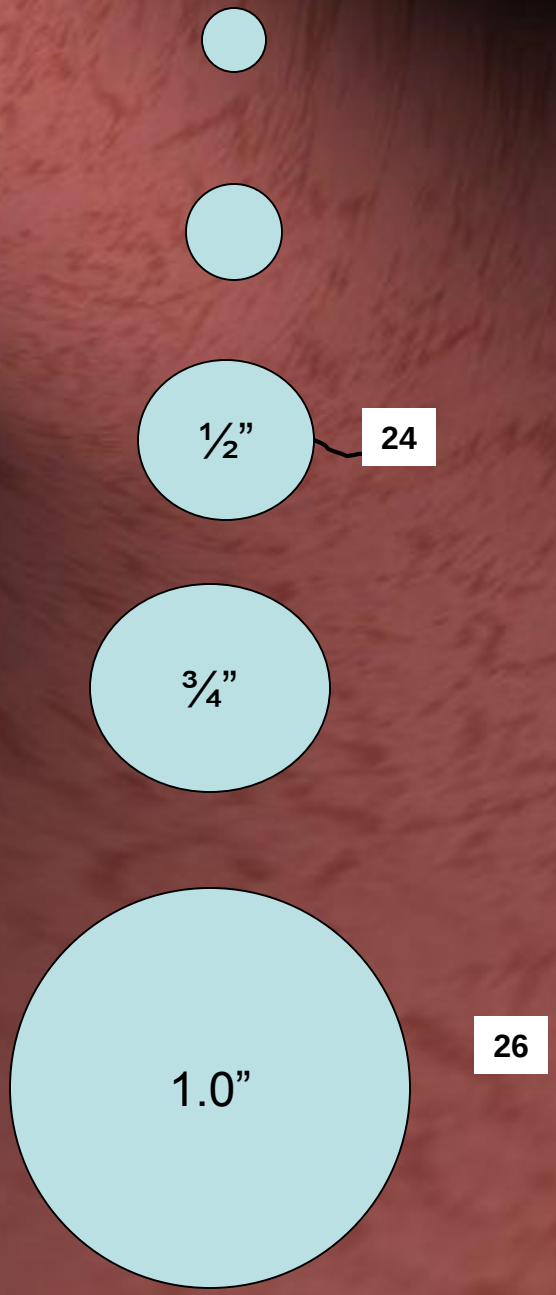
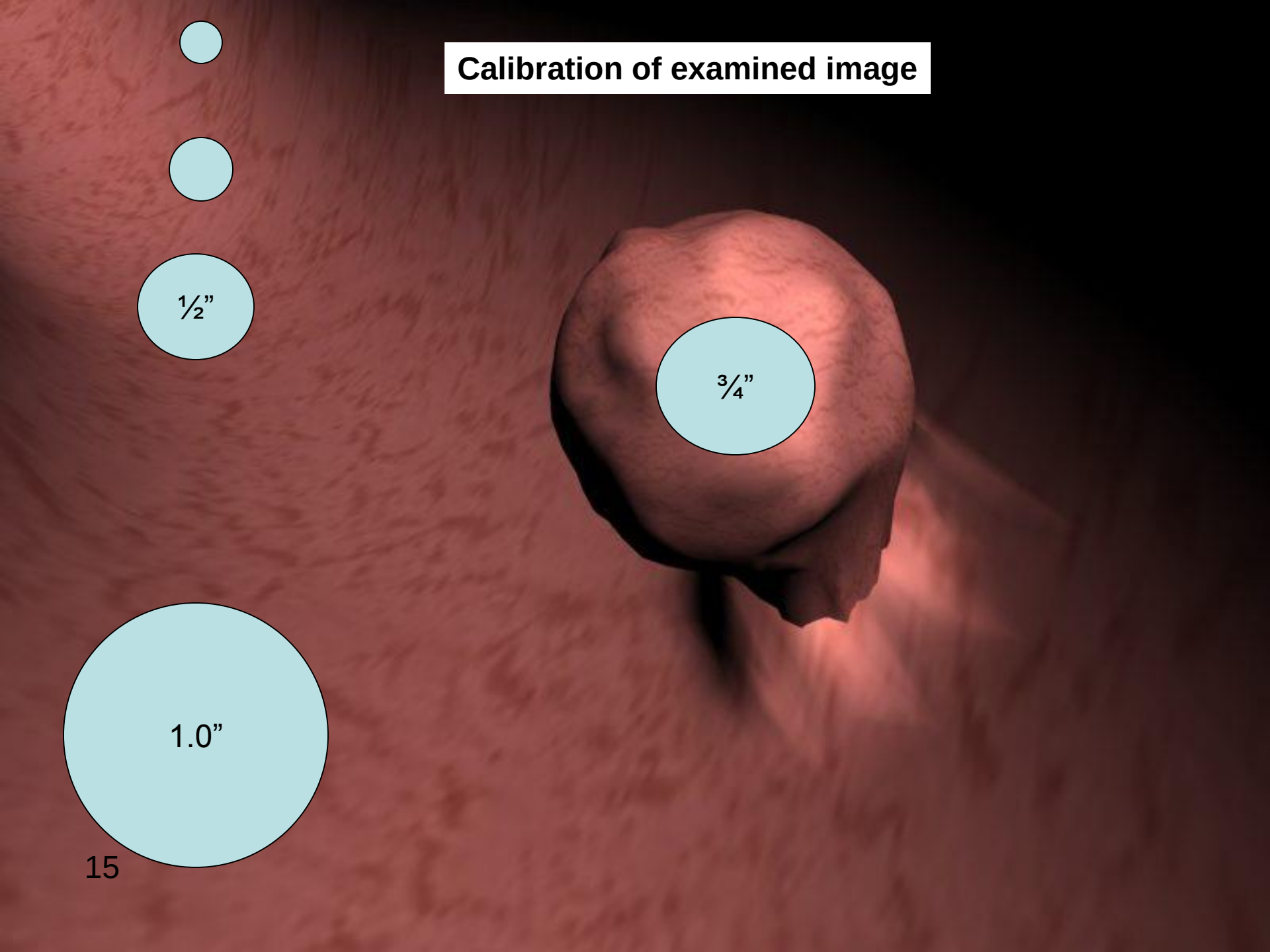
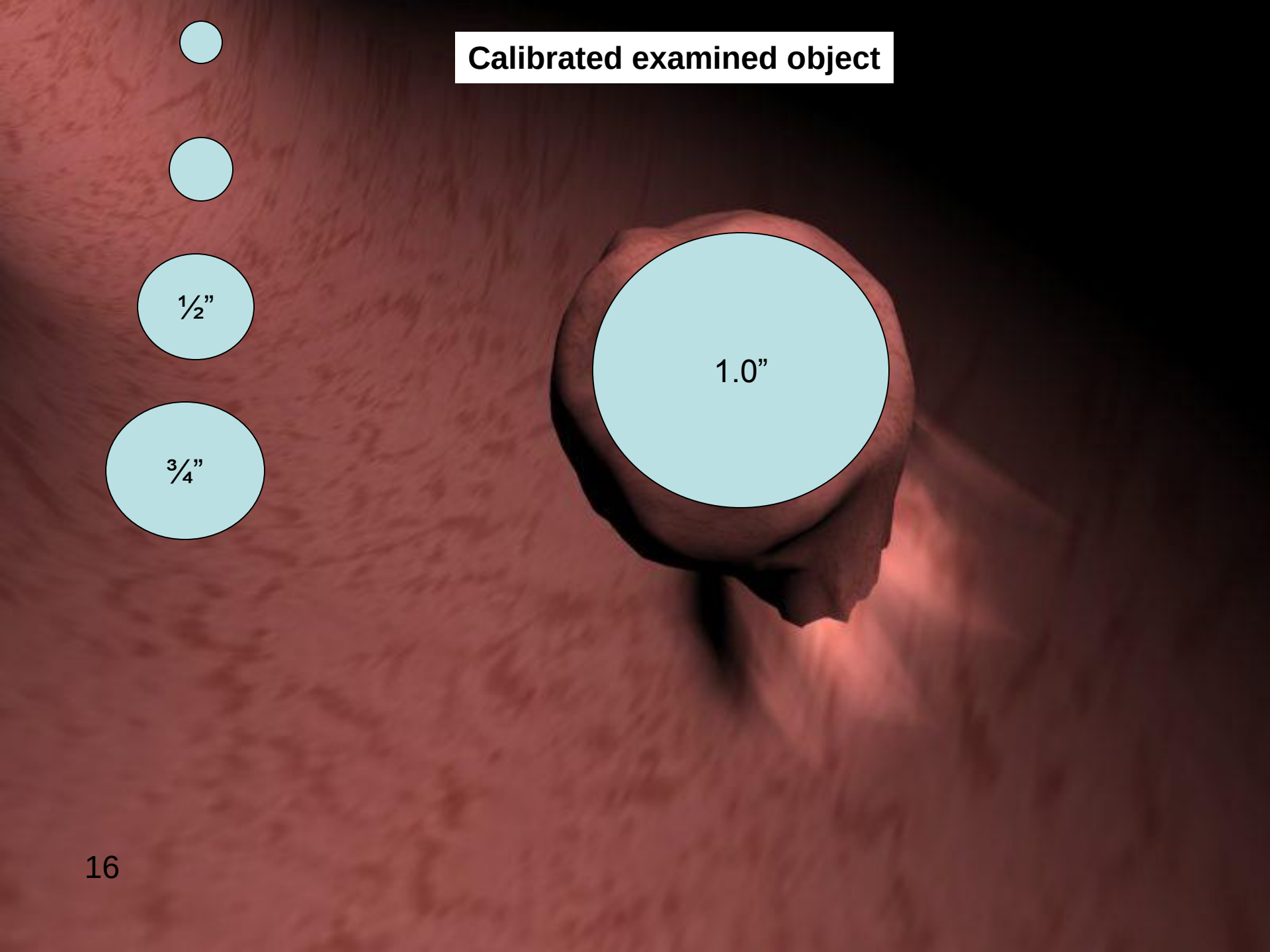


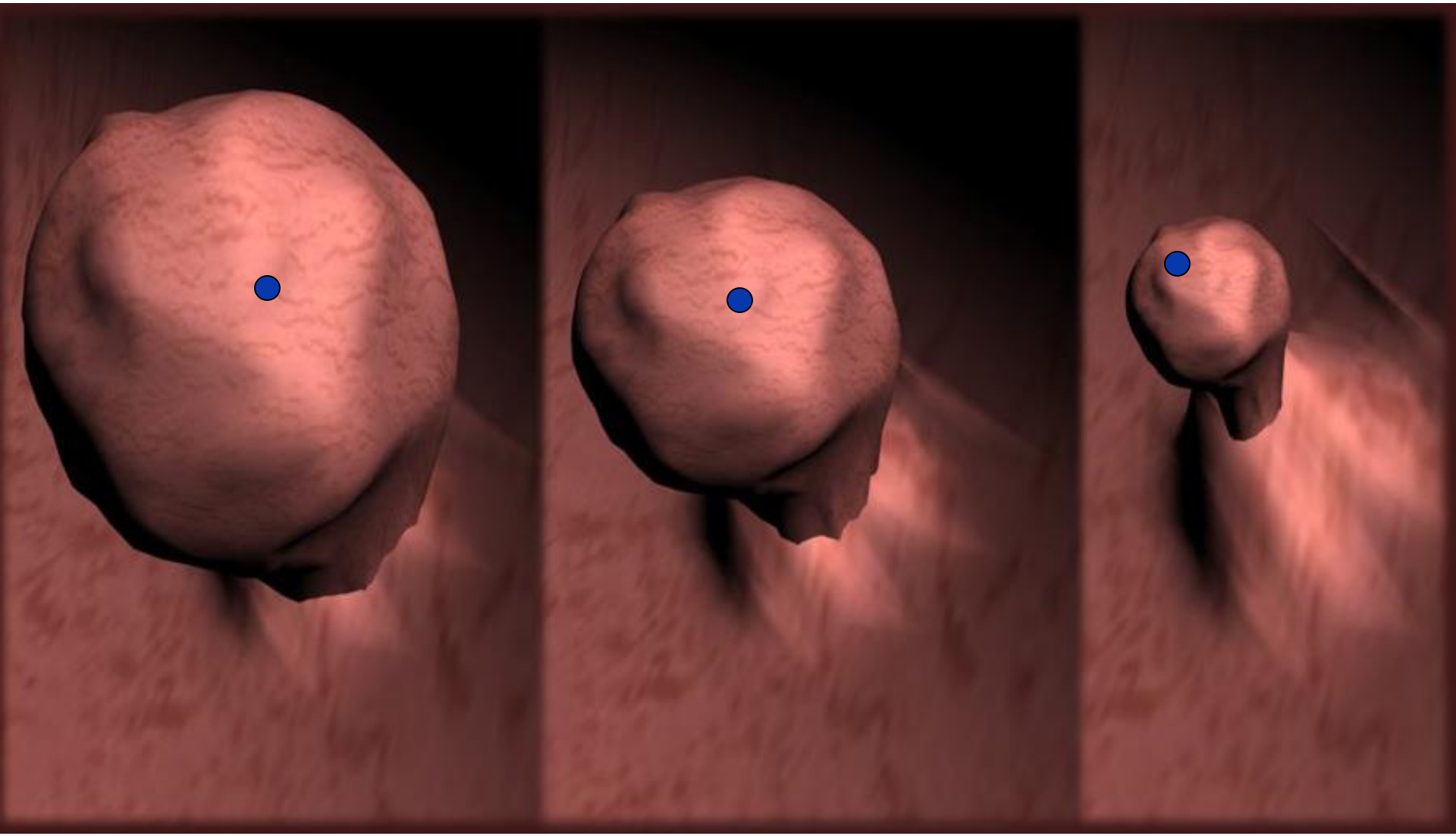
Calibration of examined image



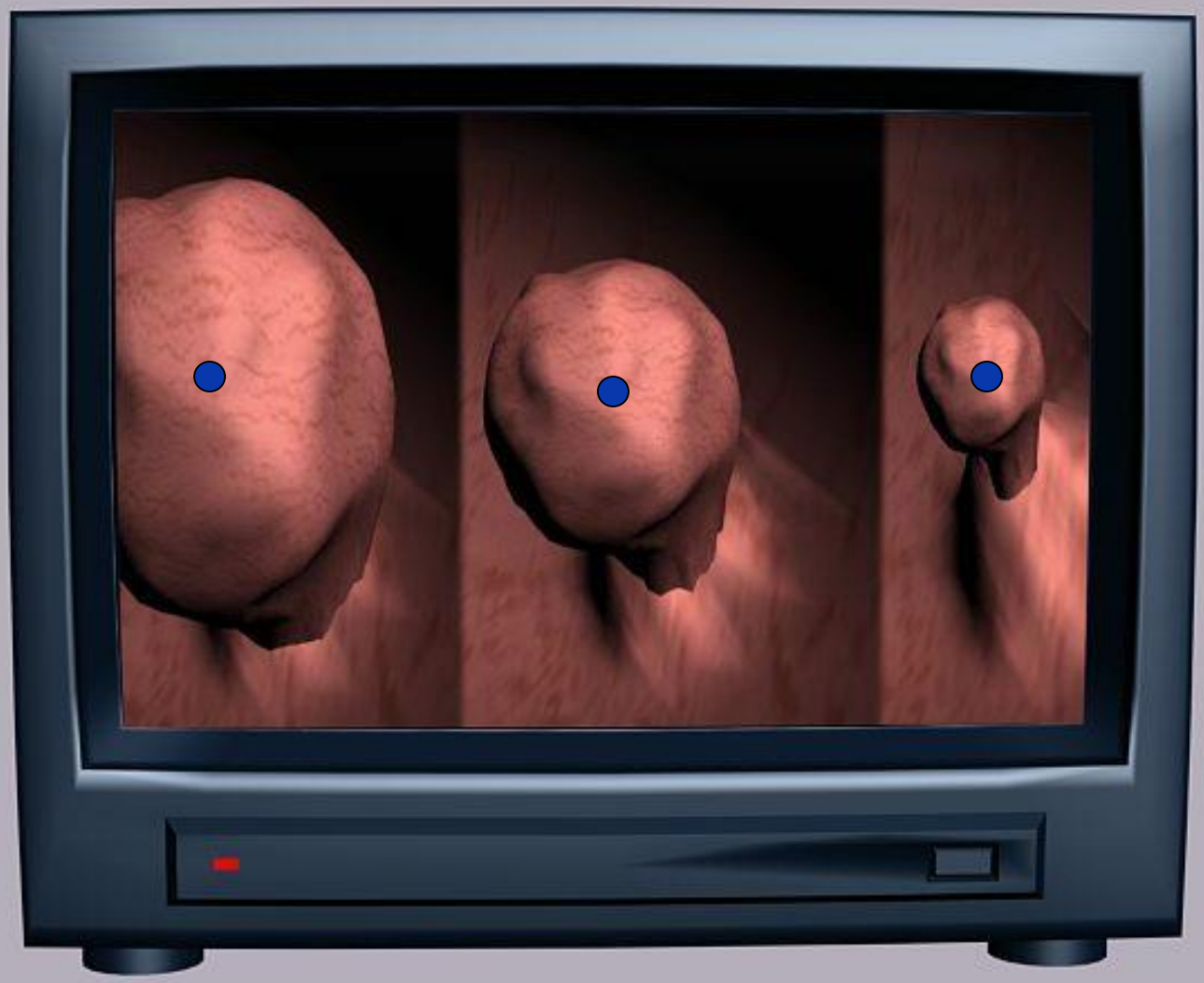

Calibration of examined image
½”
¾”
1.0”


Calibrated examined object
½”
¾”
1.0”

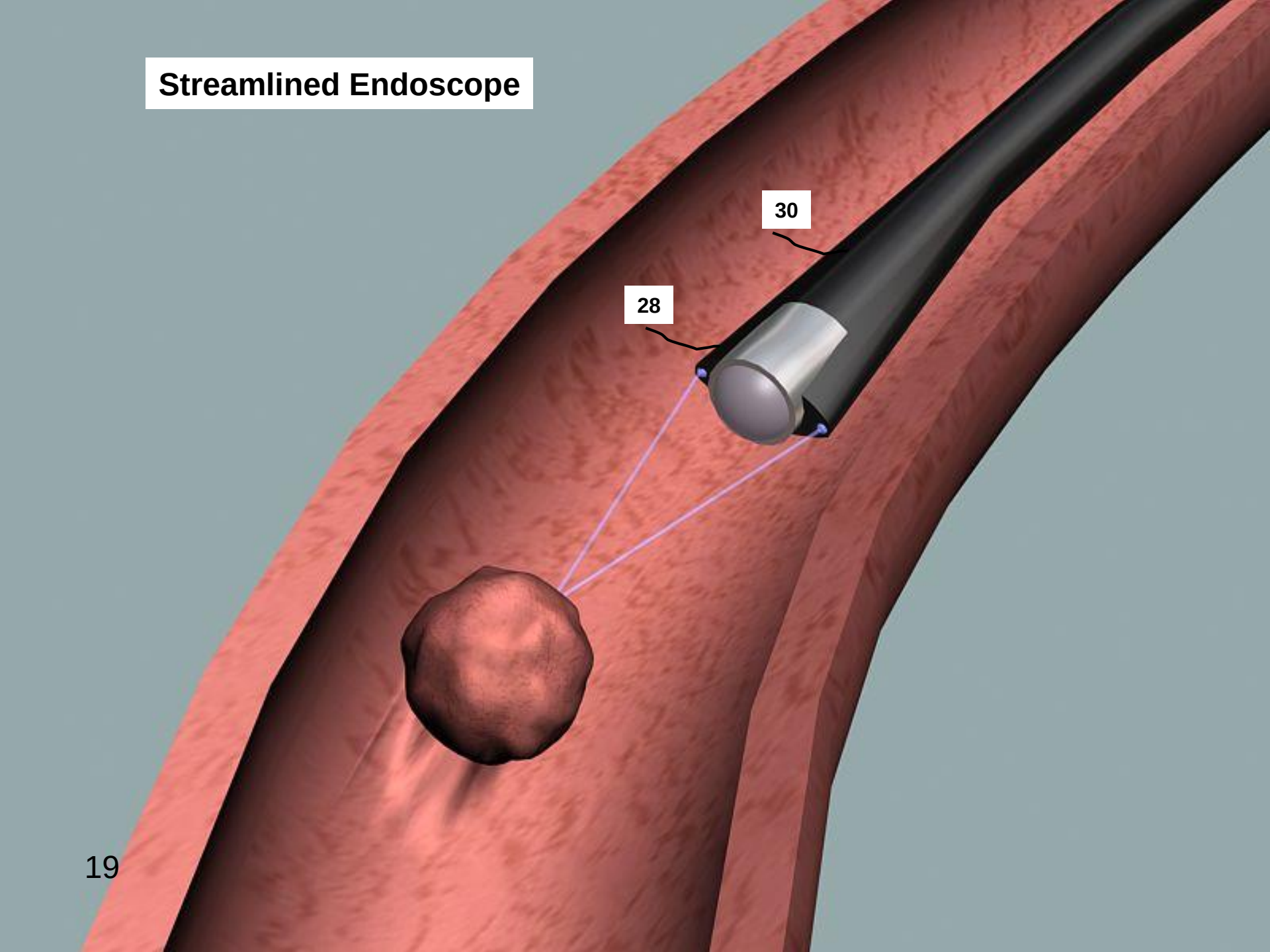
Printed Records of a Tumor

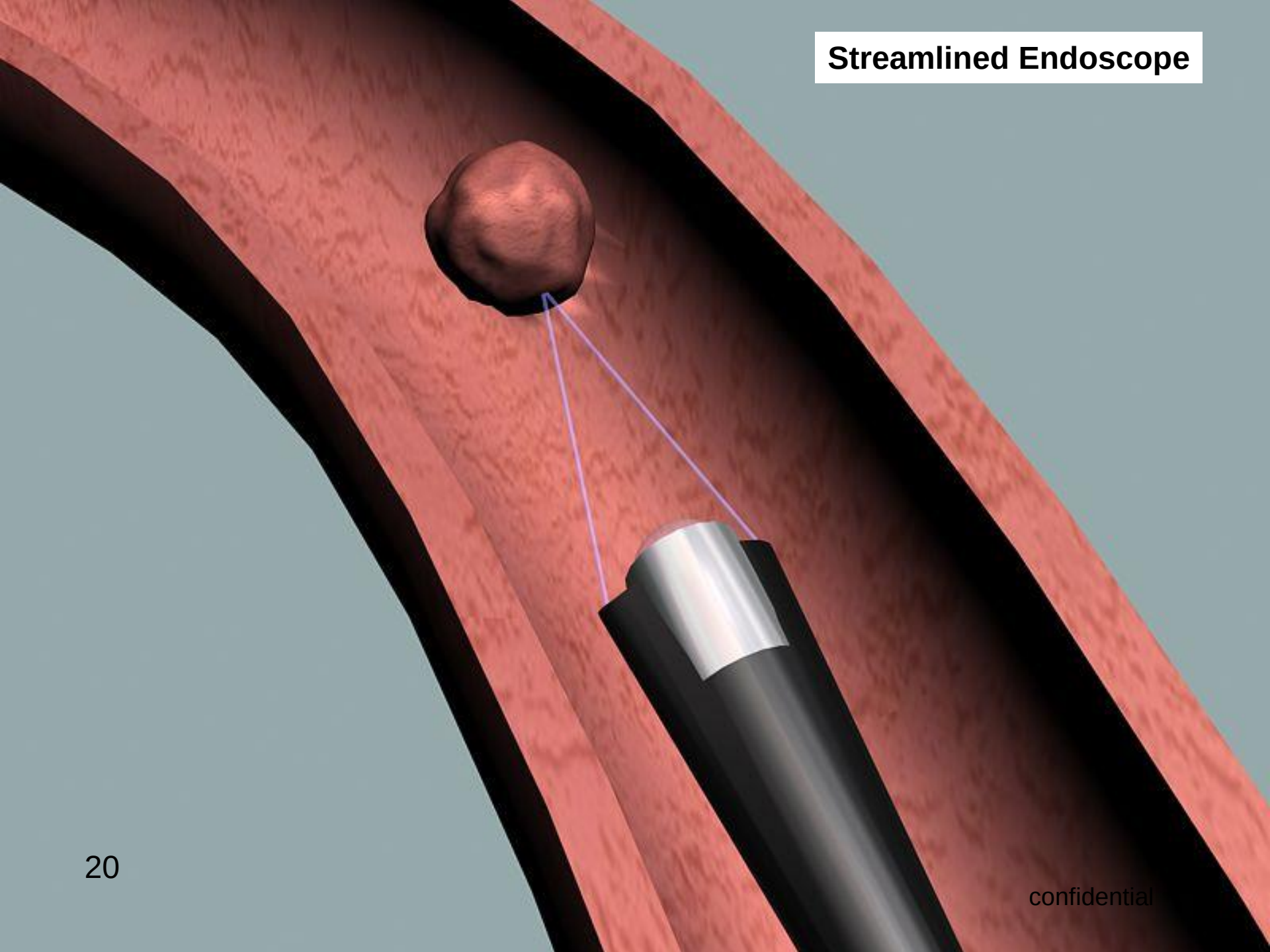


Digital Records of a Tumor

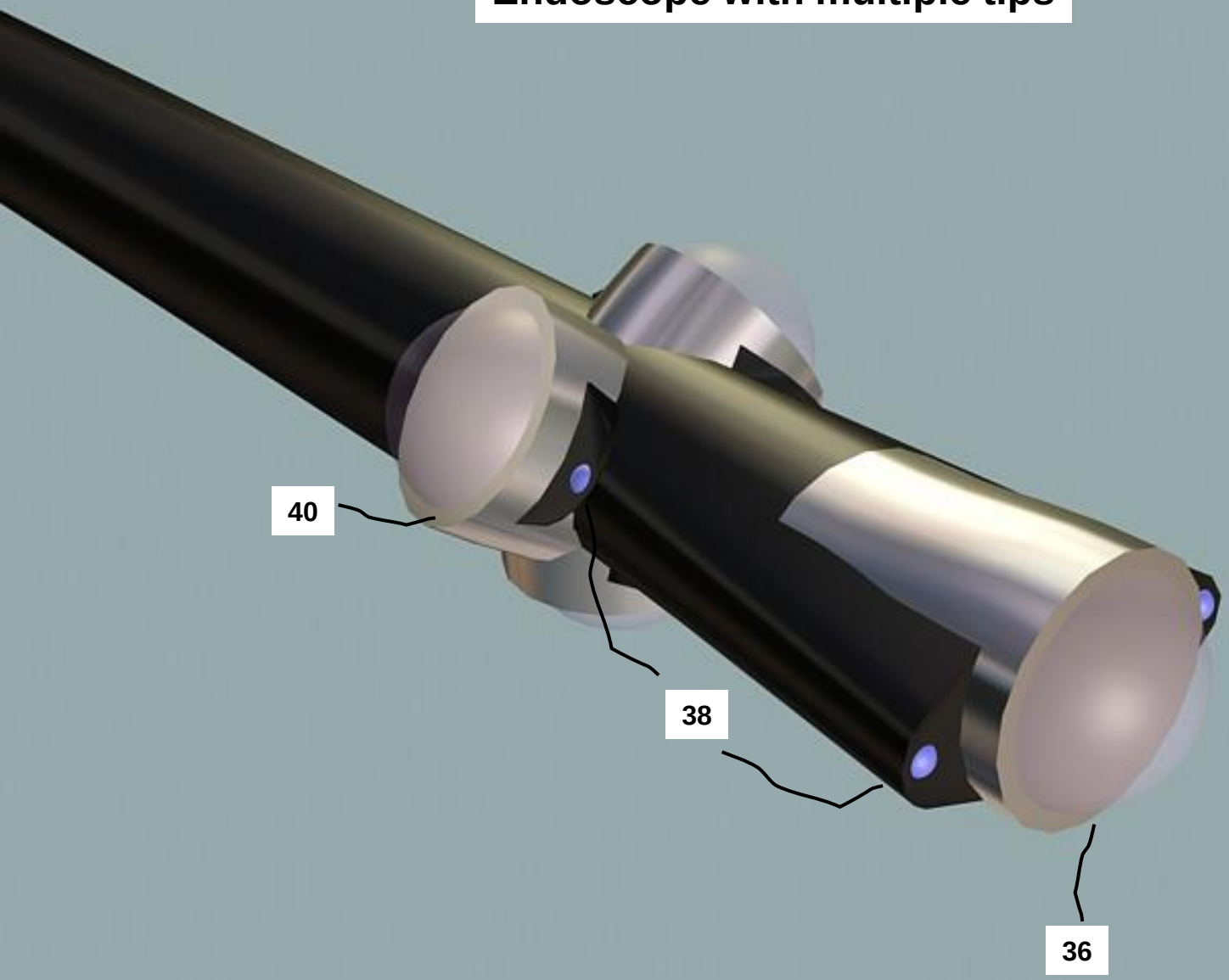


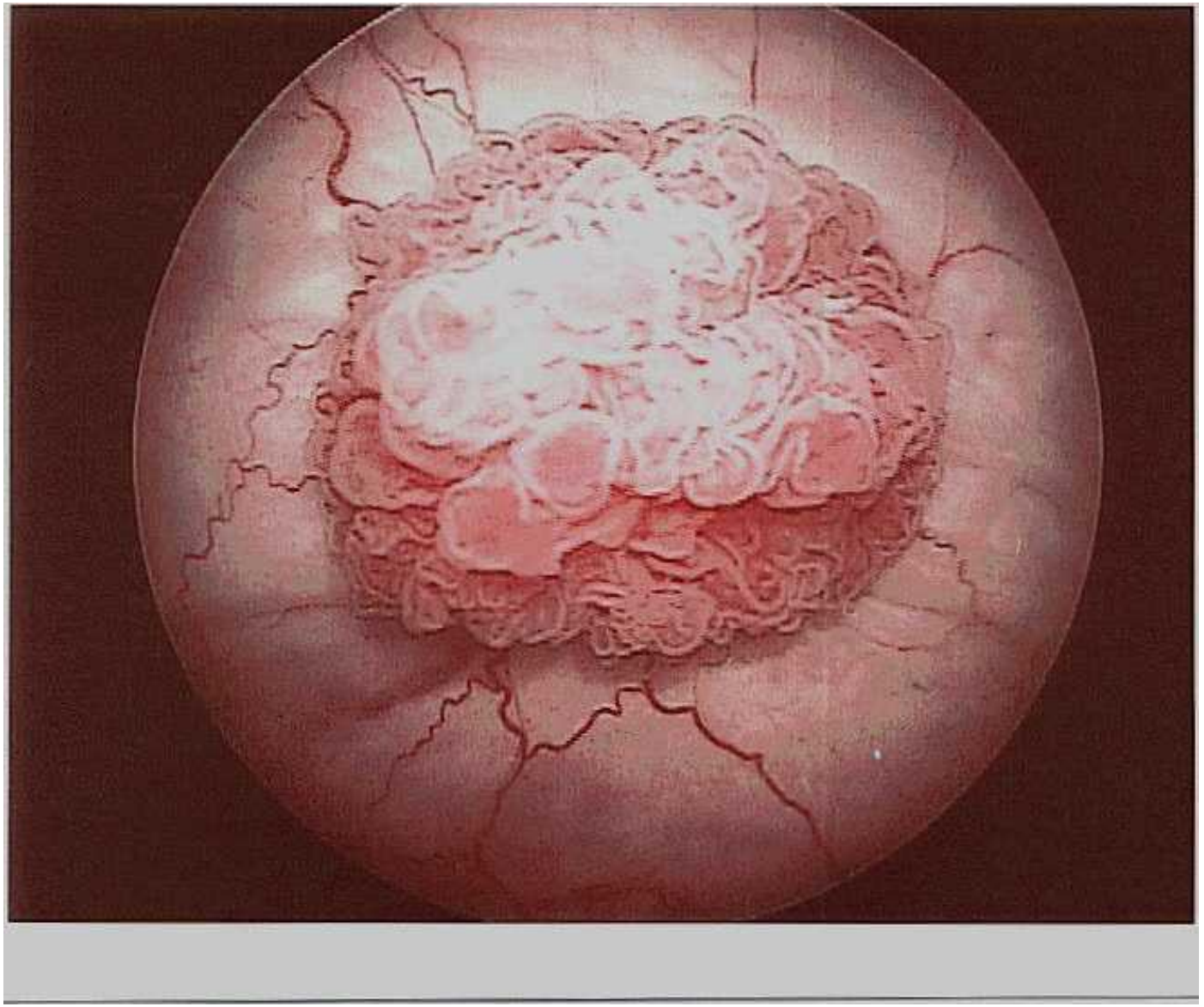
Streamlined Endoscope





Endoscope with multiple tips





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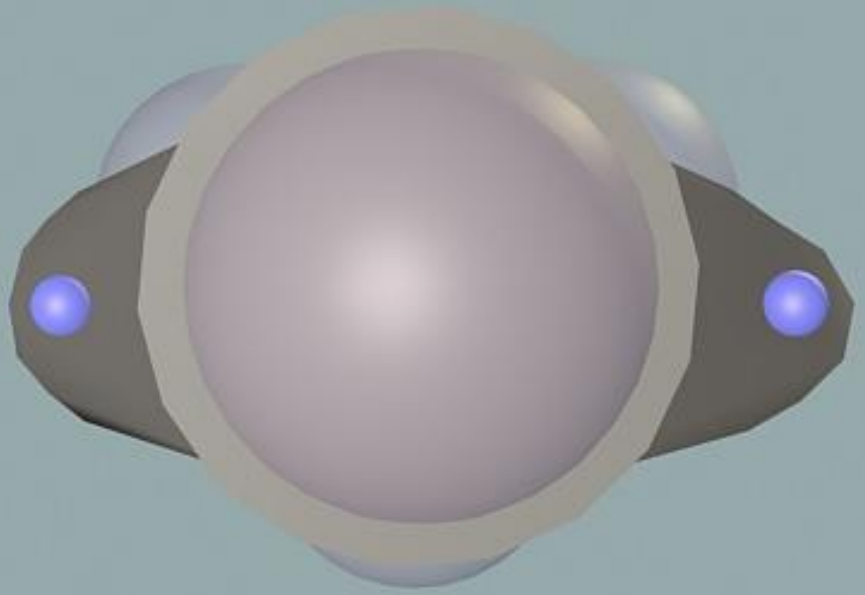
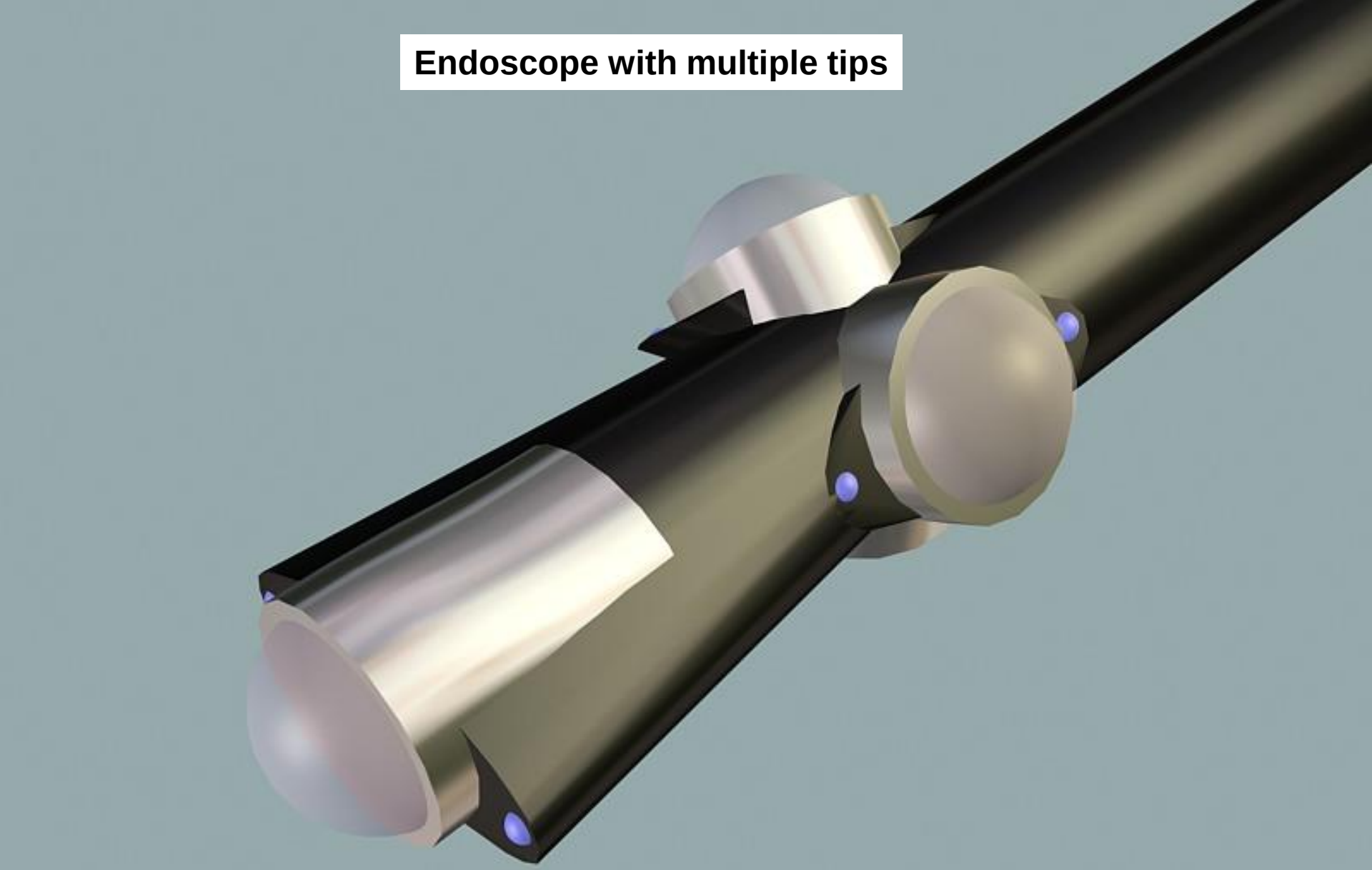
Endoscope with multiple tips



Endoscope with multiple tips



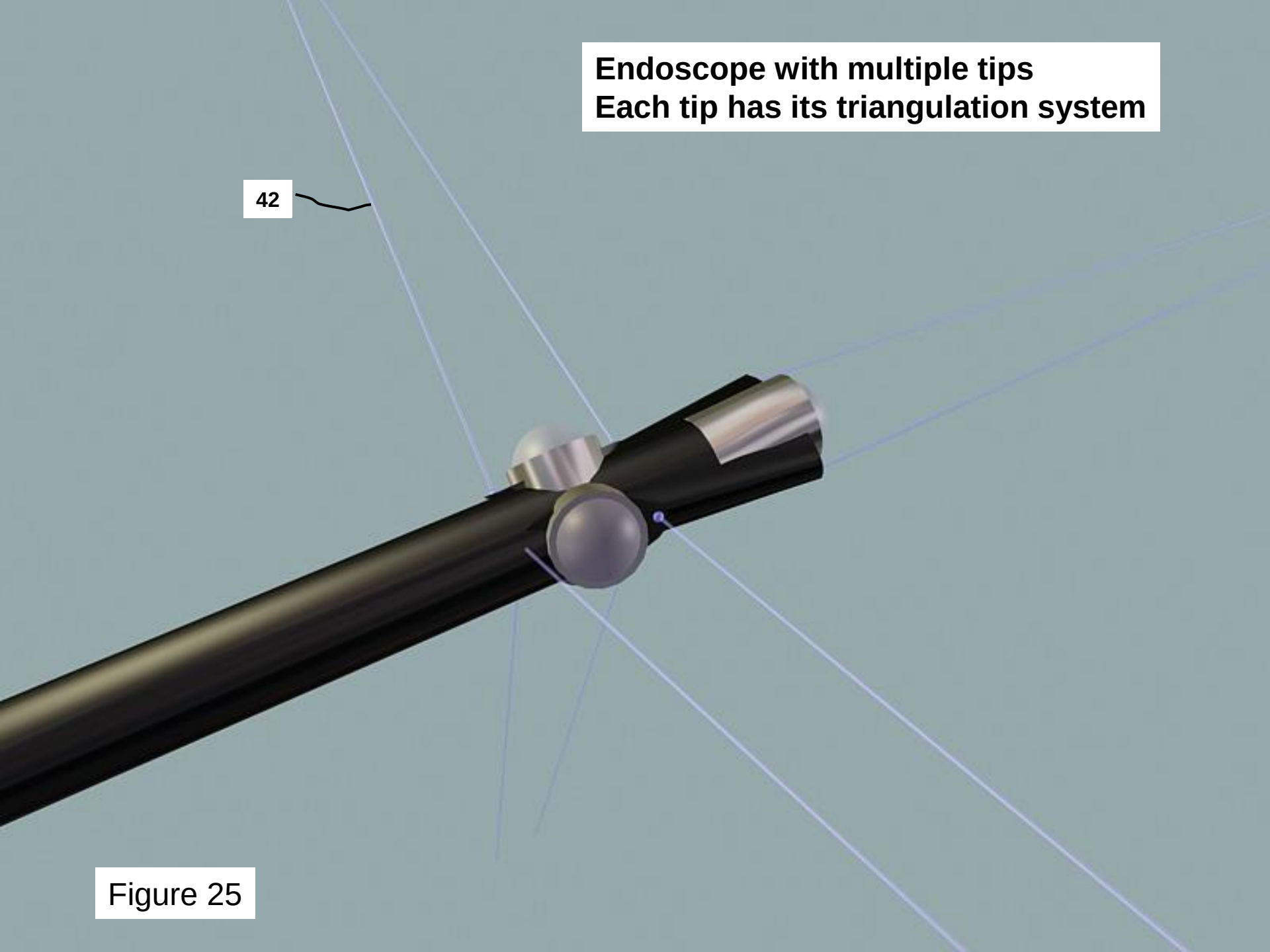
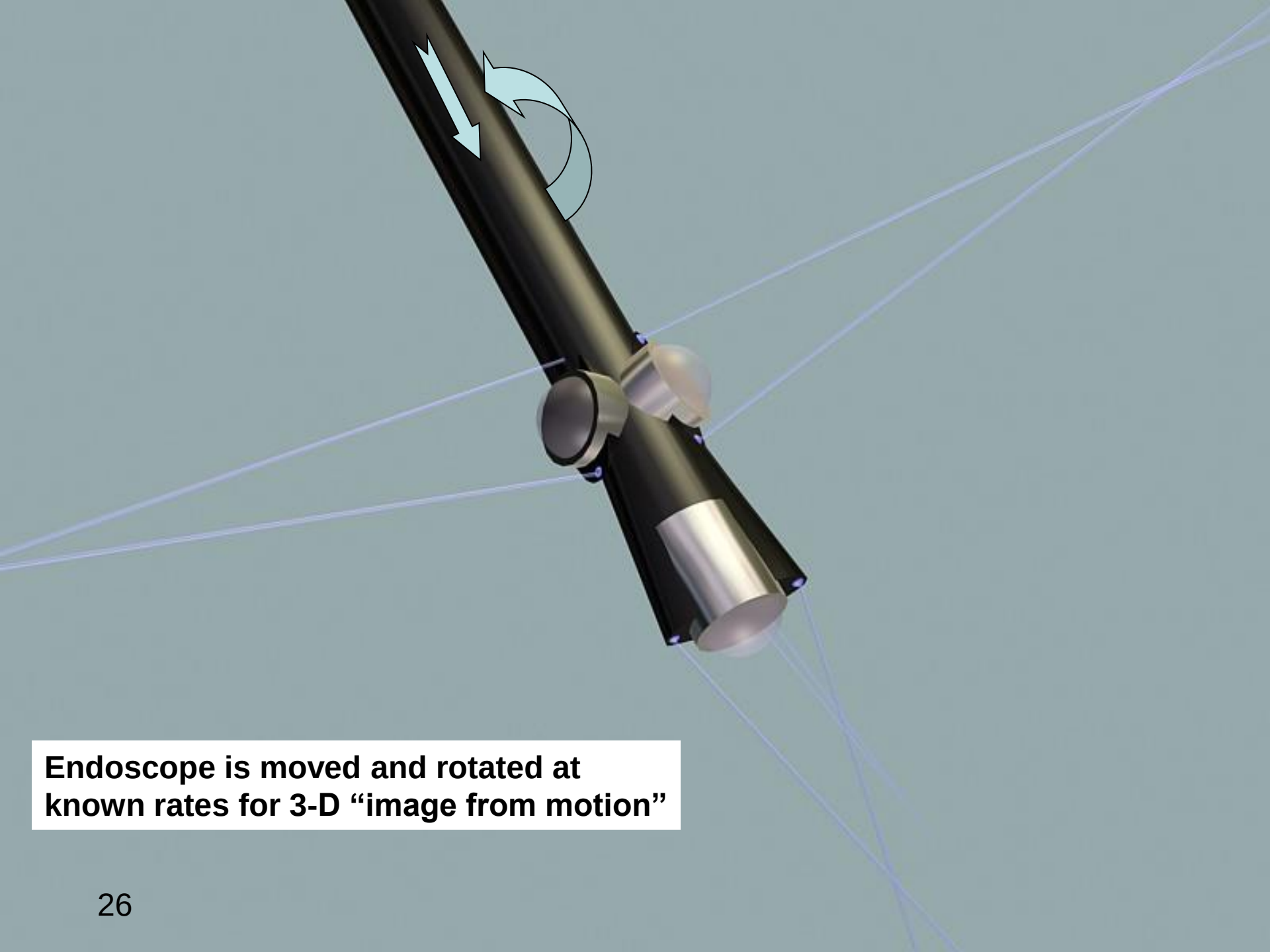

Endoscope with multiple tips
Each tip has its triangulation system
42

Figure 25



Endoscope is moved and rotated at known rates for 3-D “image from motion”

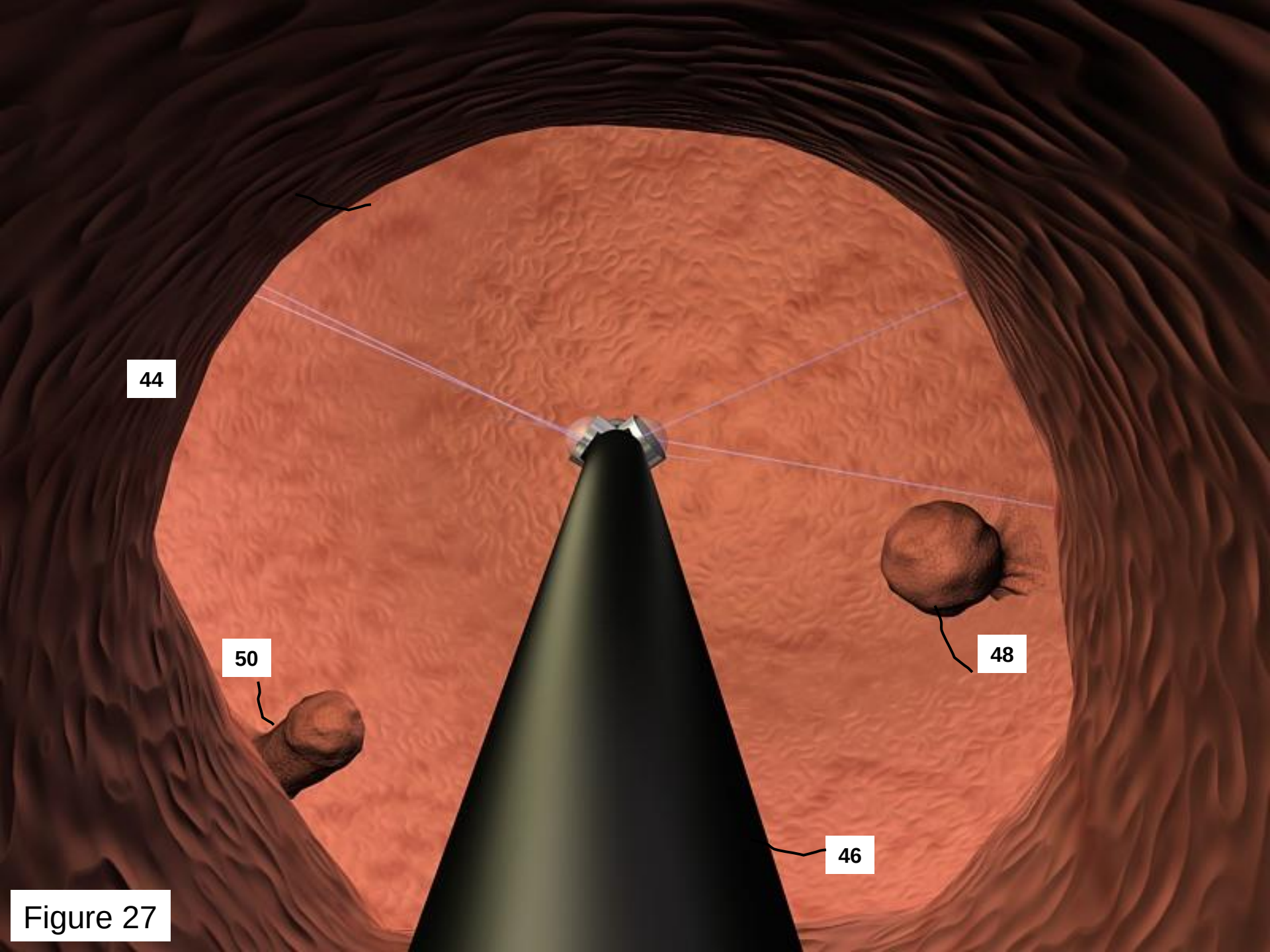


Figure 27

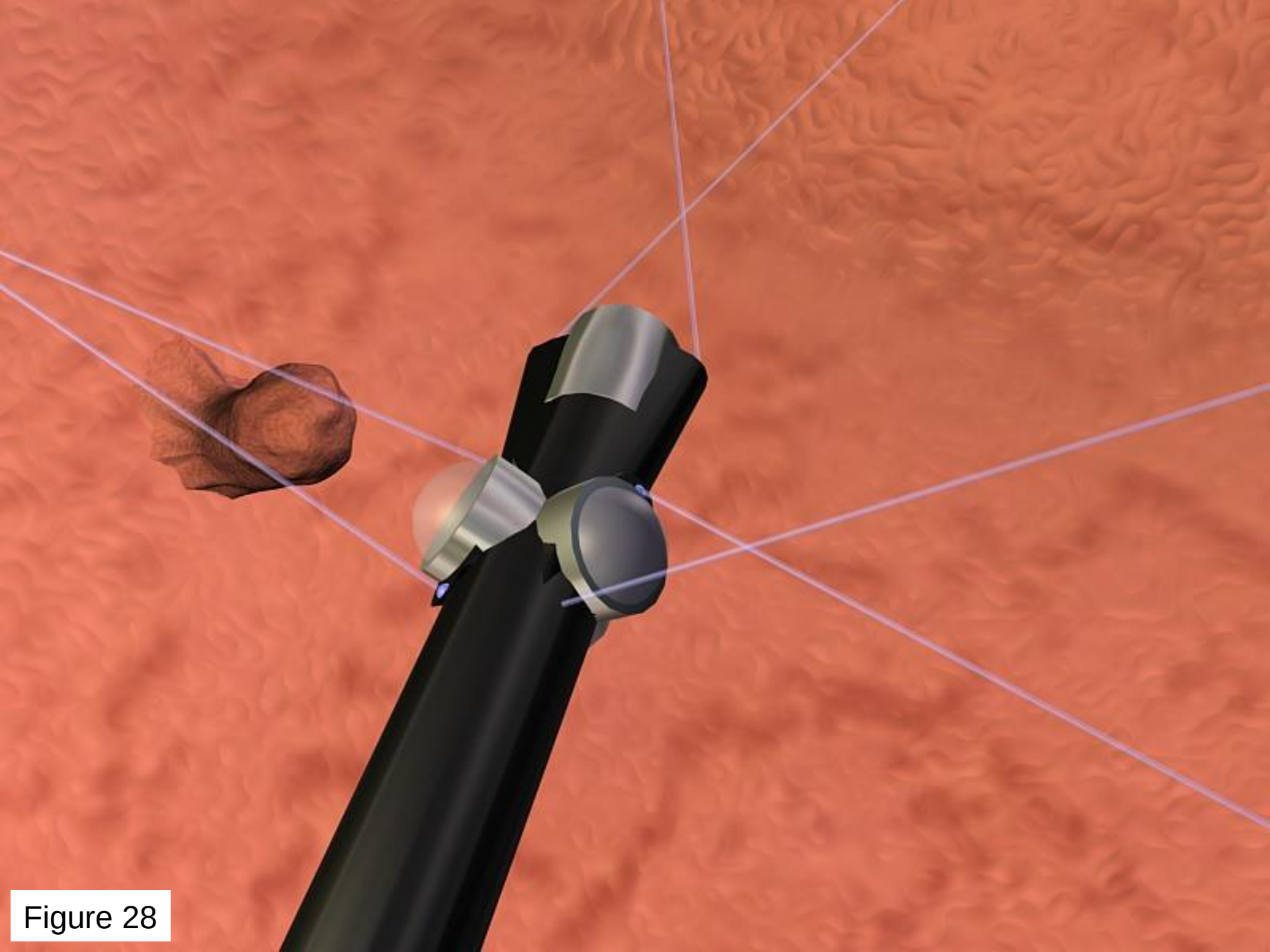
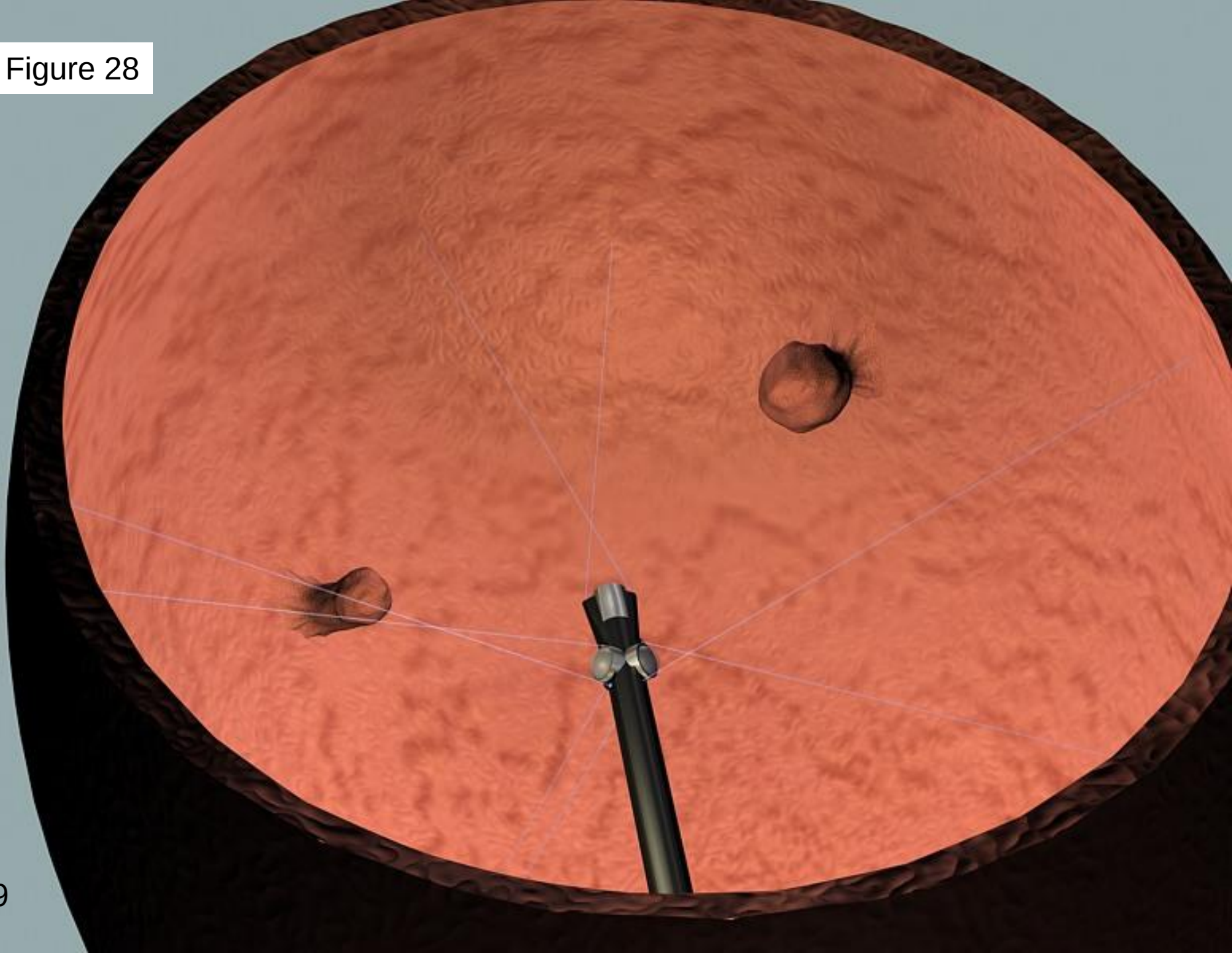


Figure 28

Figure 28



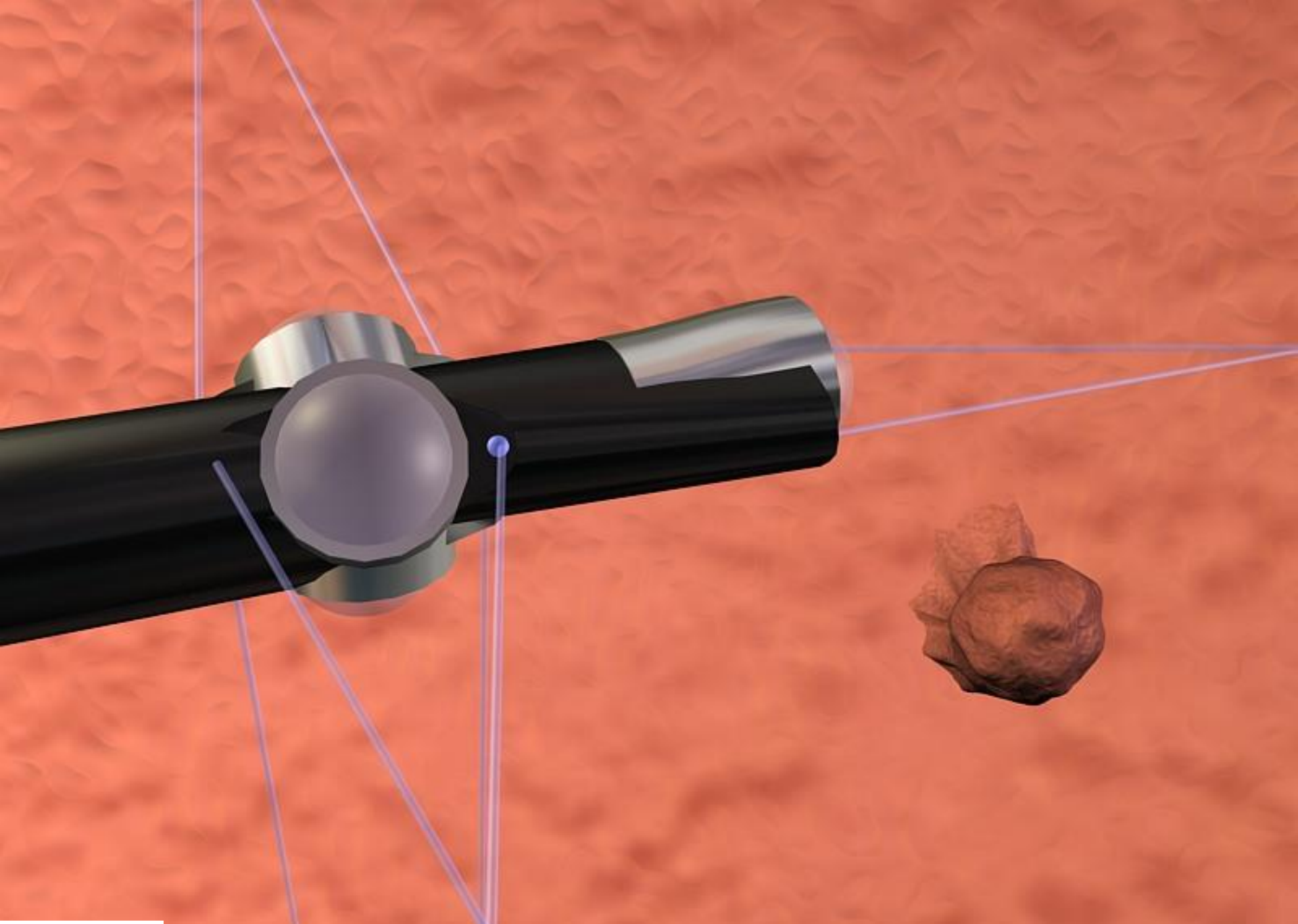


Figure 30

Conceptual 2-D map of bladder

We may develop global standards
for 2-D and 3-D mapping

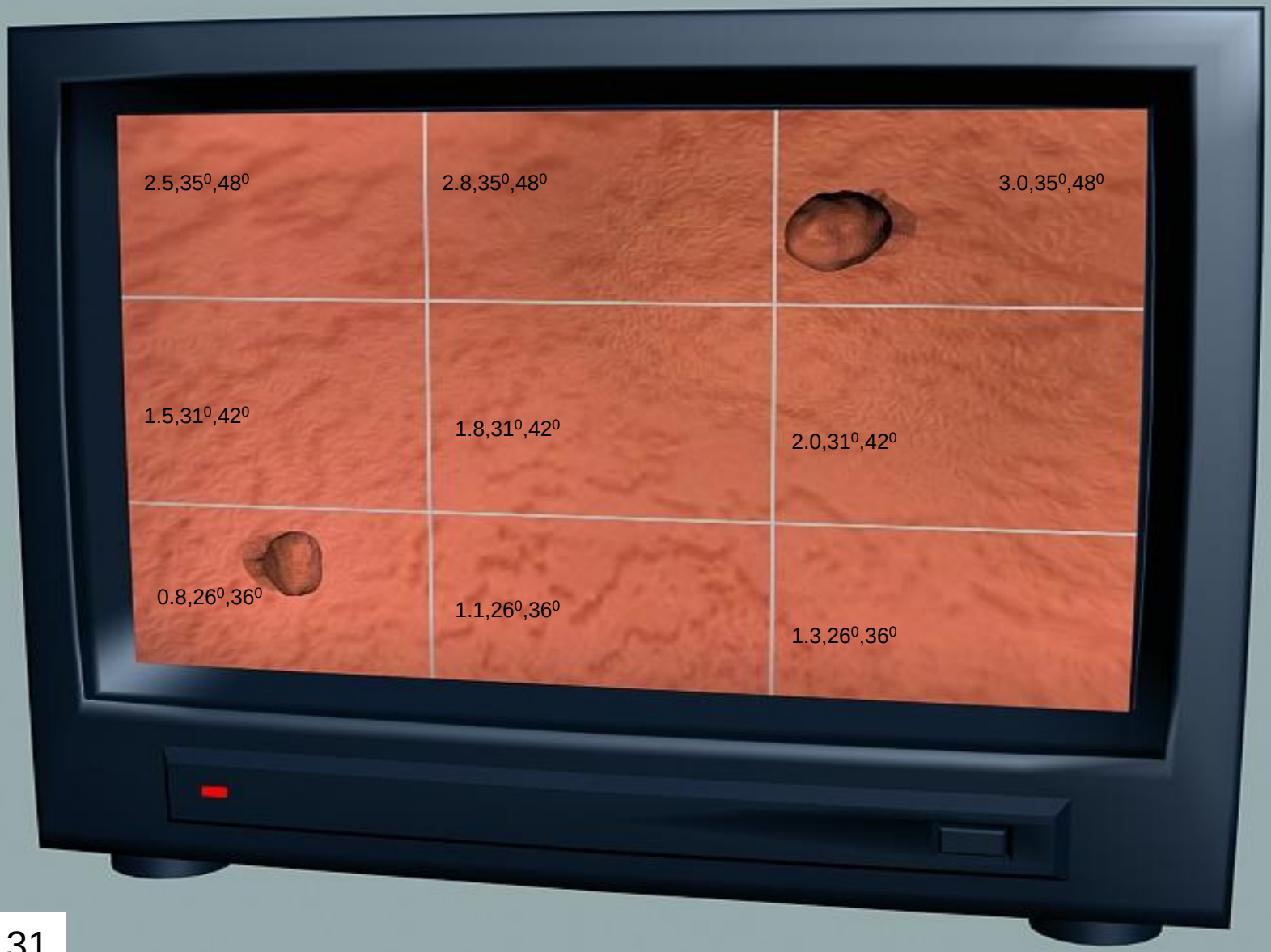
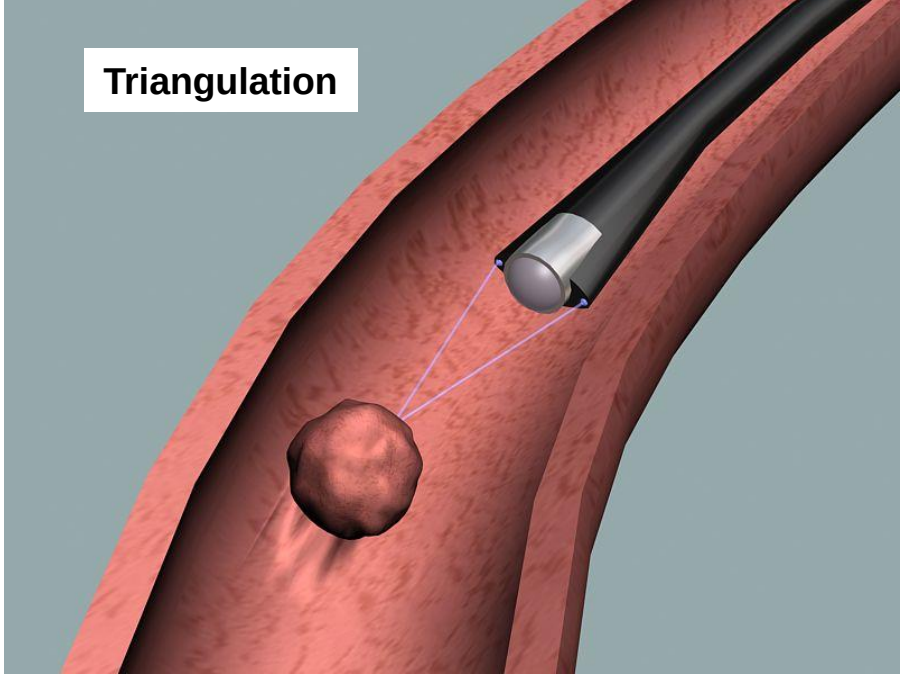


Figure 31

The basic concepts could be used for numerous medical applications.



Endoscope with multiple tips
“Image from Motion”
Stitching images for mapping