Our experiences with navigation system in traumatology.

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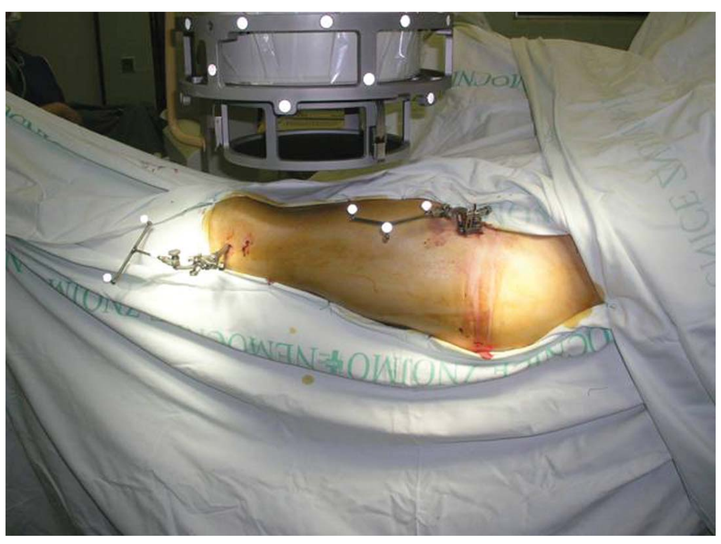
We have used navigation system VectorVision Fluoro 2D (BrainLAB) fluoroscopic for the treatment of fractures of long bones, pelvis and spine since 2006. The purpose of usage of the navigation system is our endeavour for imporvement of results (rotation and axis deviation, diference in lenght), and reduction time of radiation exposure for patiens and for surgical team

The navigation system works on passive infrared transmission principle. There are three functional parts : infrared camera, computer with touch screen and special markers which have to be placed firmly on the bone surface. The system compares position between camera and markers in real time and creates 2D or 3D bone model. This procedure reduces time of radiation exposure during surgery

Material

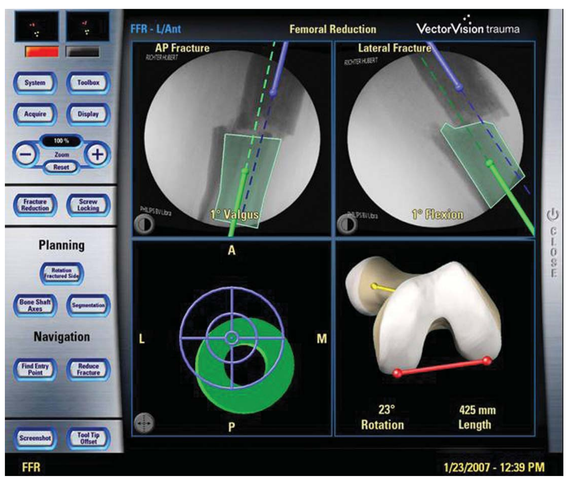
since 2006, 42 patients male 27 female 15
age 13 - 83 years, meanly 56 years
Indication closed fractures

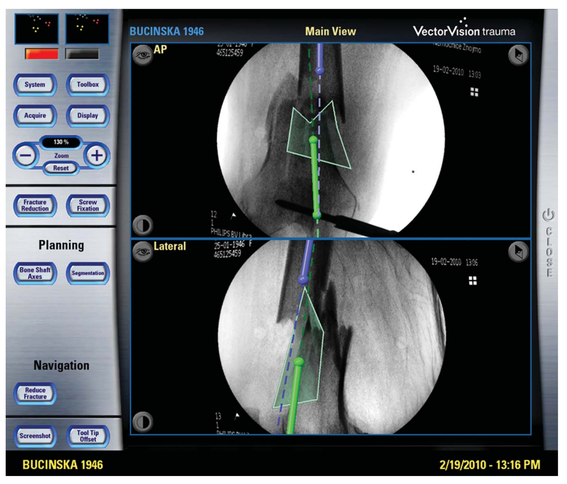
location	Femur	nail	8	plate 1
	Tibia	nail	18	
	Pelvis		7	
	Spine		8	

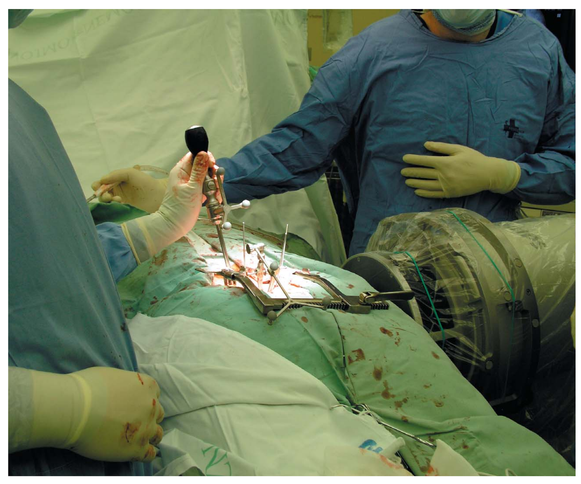


Results

the mean operation time was between 75 to 154 minutes. 96minutes in average rotation and axis deviation in femur and tibia fractures less than 5 degrees in all cases.
mean radiation time 106 sec range from 65 to 153 sec







Conclusions

The navigation is a significant improvement in traumatology.
A quarter of femur diaphysis fractures treated by nailing has the rotation deviation.
The trauma navigation reduces the risk of such malunions and reduces the radiation exposure for a patient and whole team on the operating roomtheatre.

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