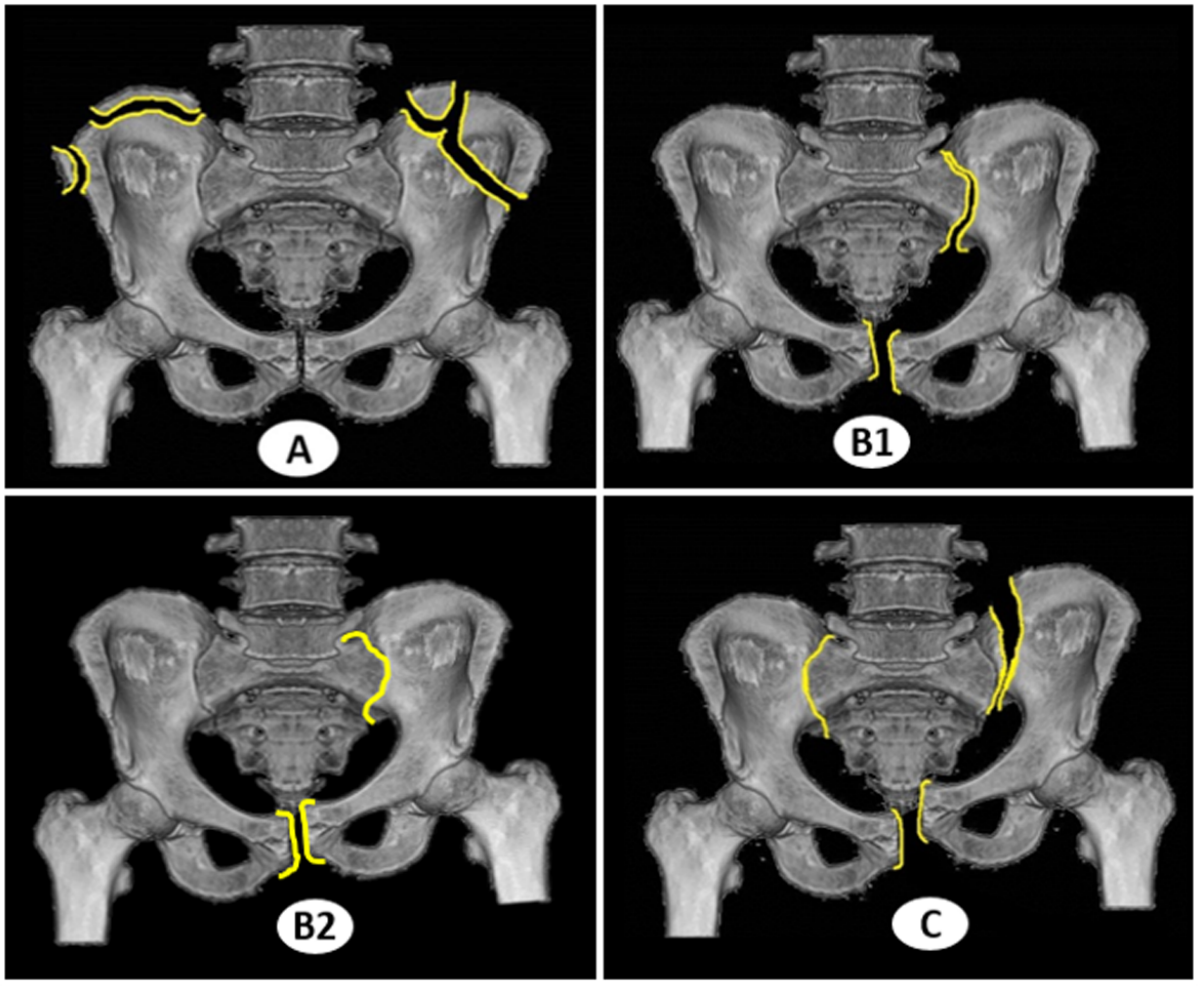

Type A: Pelvic ring stable
- A1: fractures not involving the ring (i.e. avulsions, iliac wing or crest fractures)
- A2: stable minimally displaced fractures of the pelvic ring

Type B: Pelvic ring rotationally unstable, vertically stable
- B1: open book
- B2: lateral compression, ipsilateral
- B3: lateral compression, contralateral or bucket handle-type injury

Type C: Pelvic ring rotationally and vertically unstable
- C1: unilateral
- C2: bilateral
- C3: associated with acetabular fracture

Figure 1 Tile classification

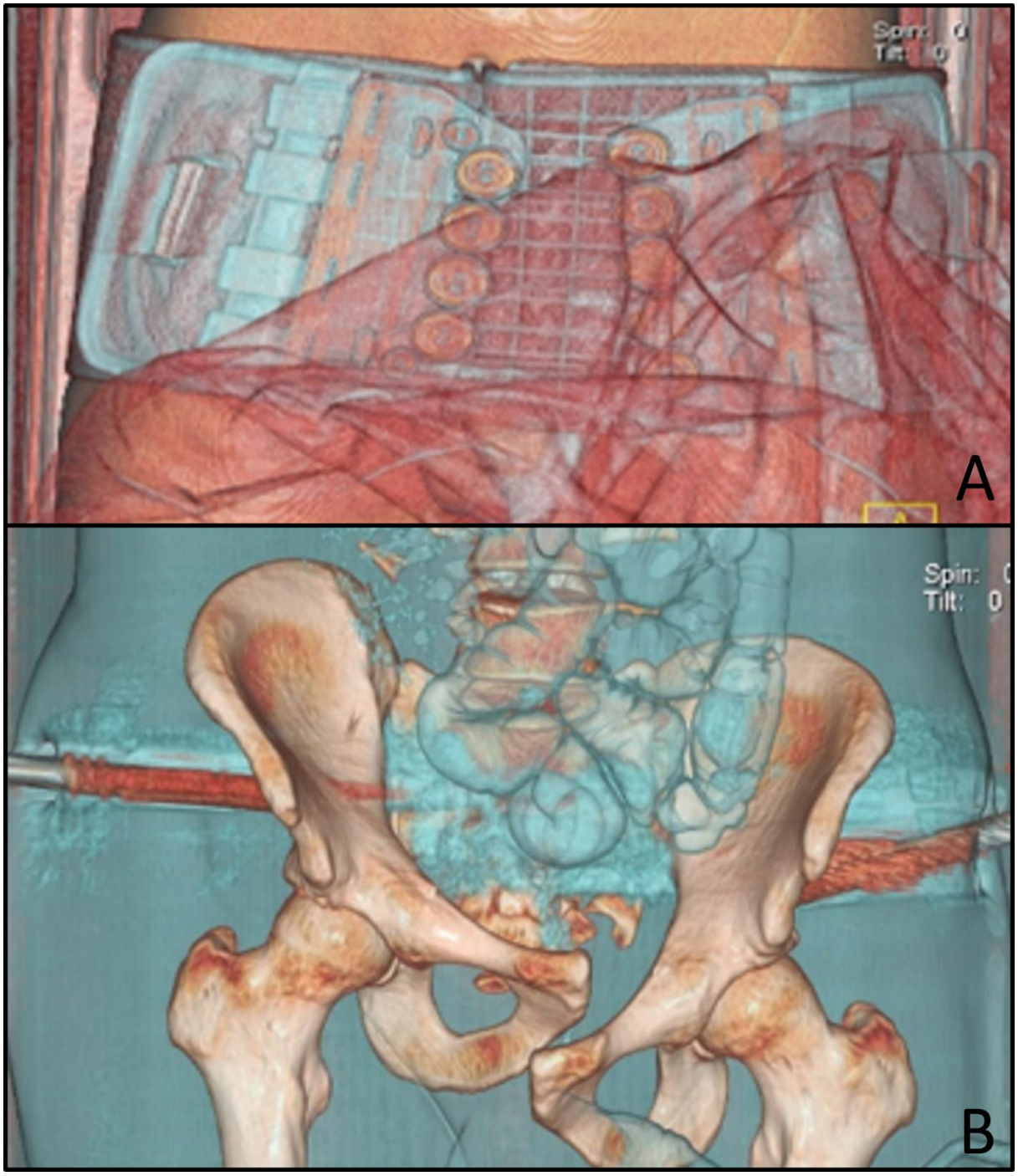

Figure 2 A) VRT of the T-POD, B) VRT of the external fixator

Figure 3 Computed Tomography

Figure 4 Devices used

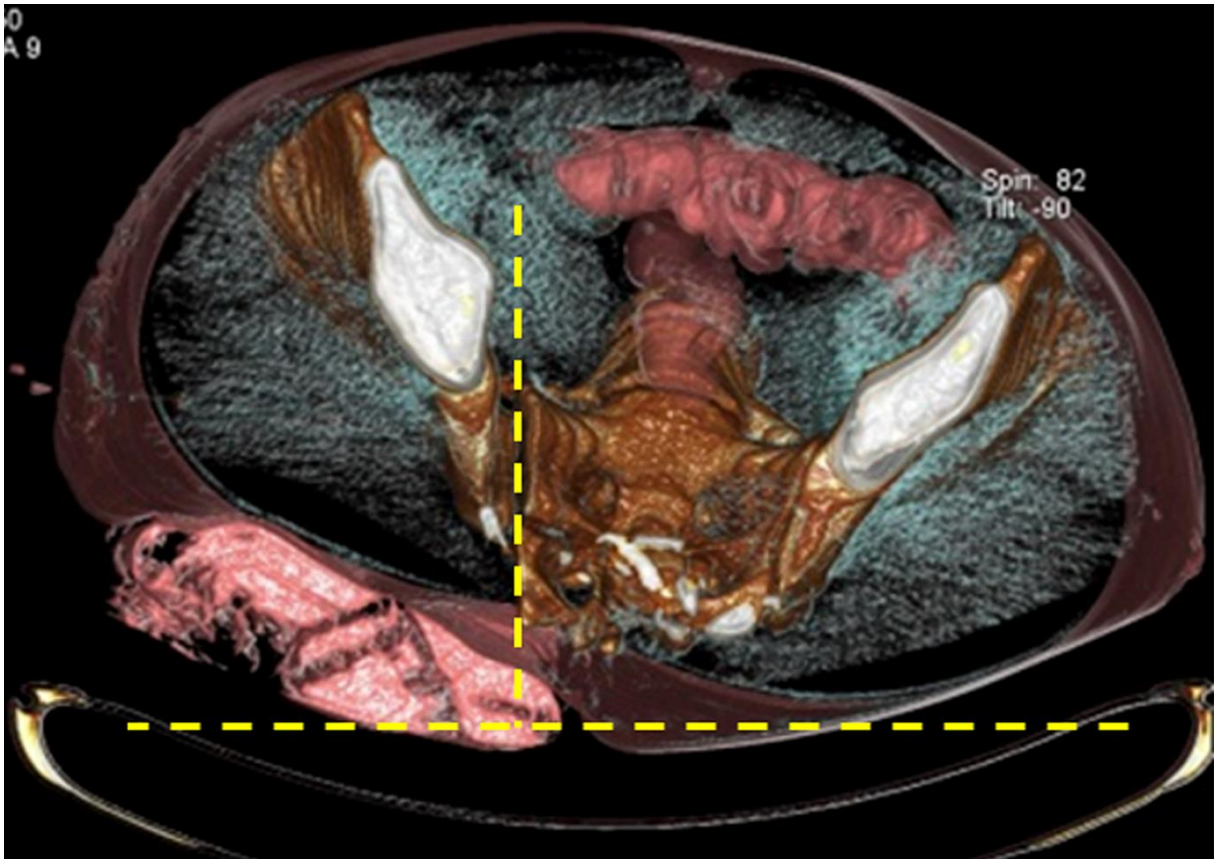

Figure 5 VRT image of patient's position

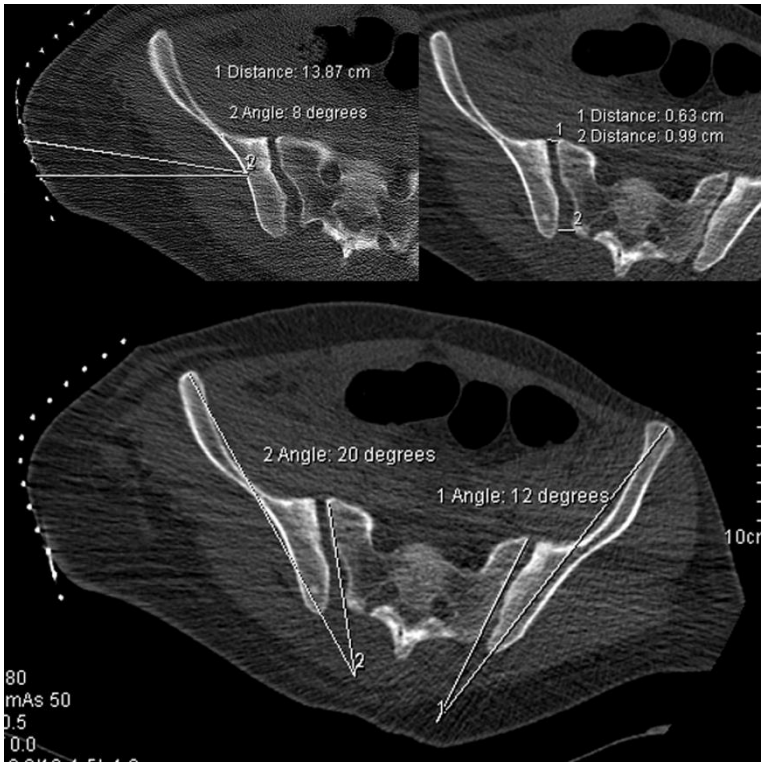

Figure 6 measurement of angles and distances

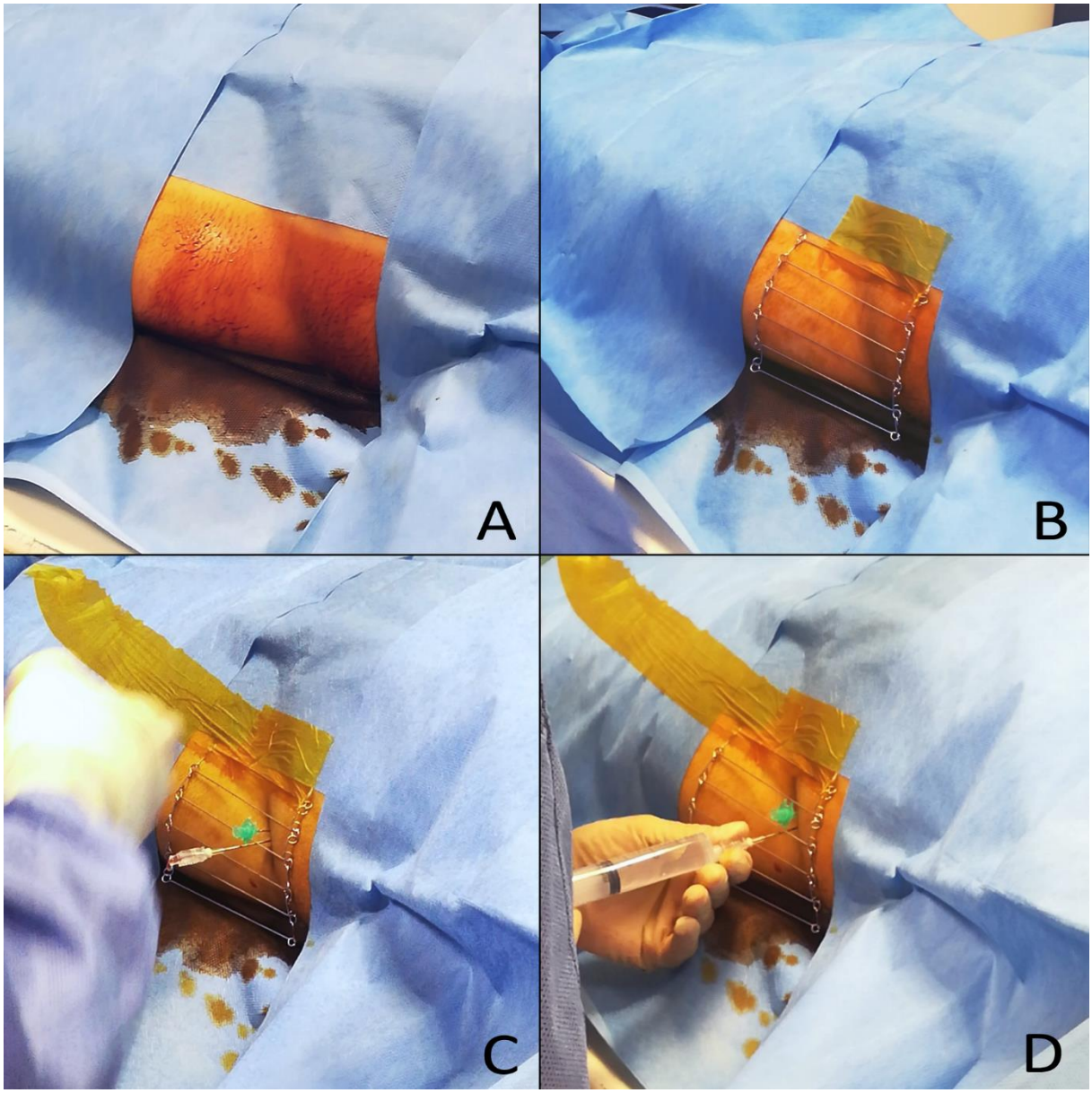

Figure 7 A) sterile zone, B) radiopaque grid, C) local anesthesia, D) deep anesthesia

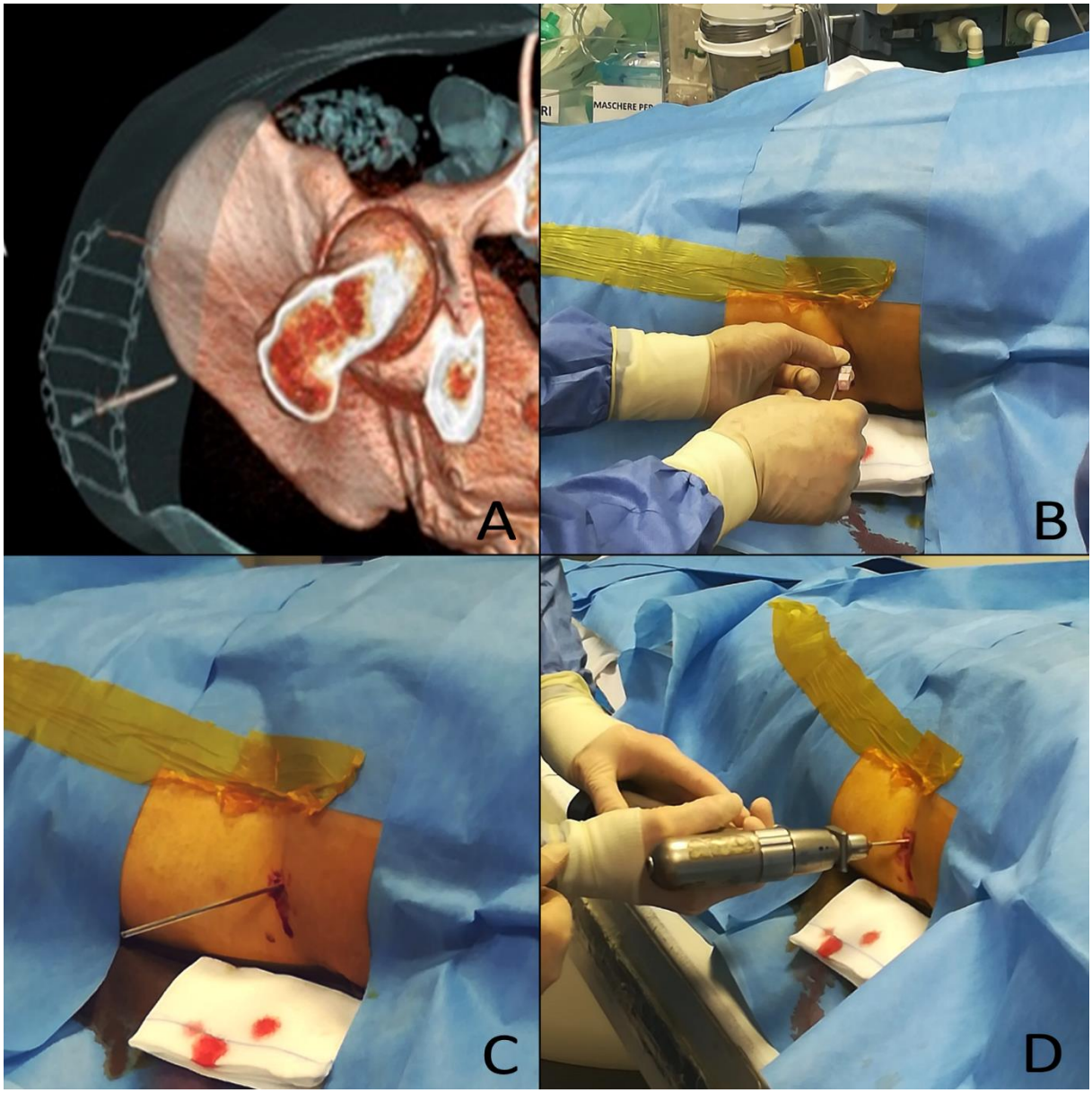

Figure 8 A) relation between Needle, grid and body, B) insertion of the guide wire, C) guide wire, D) deep insertion

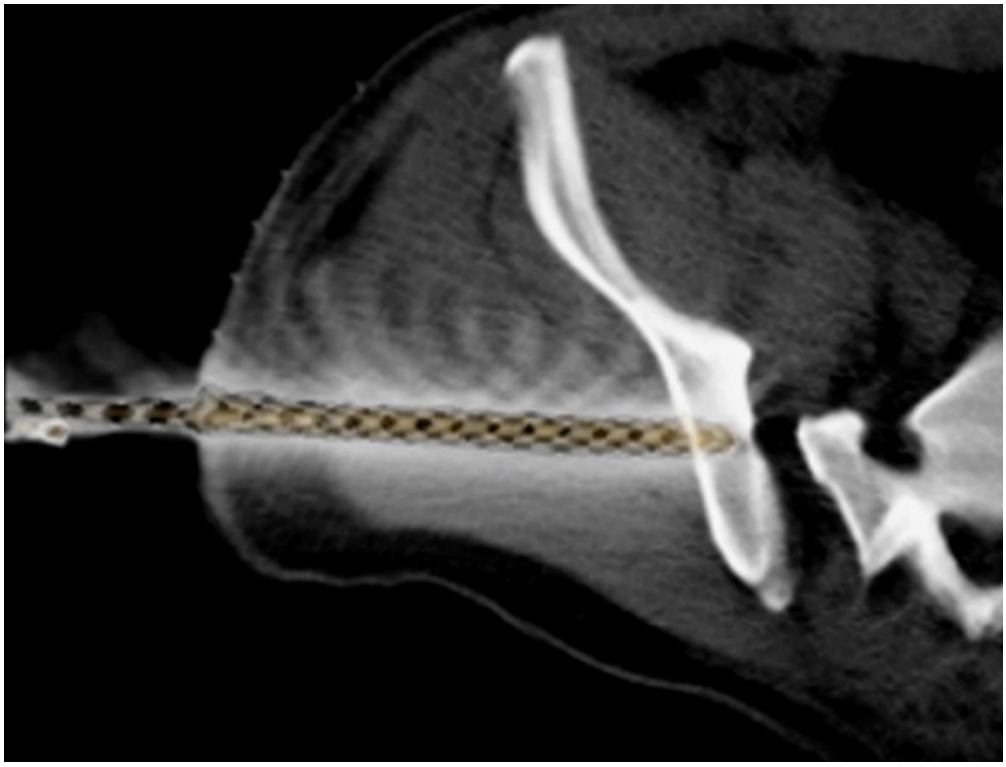

Figure 9 Drill

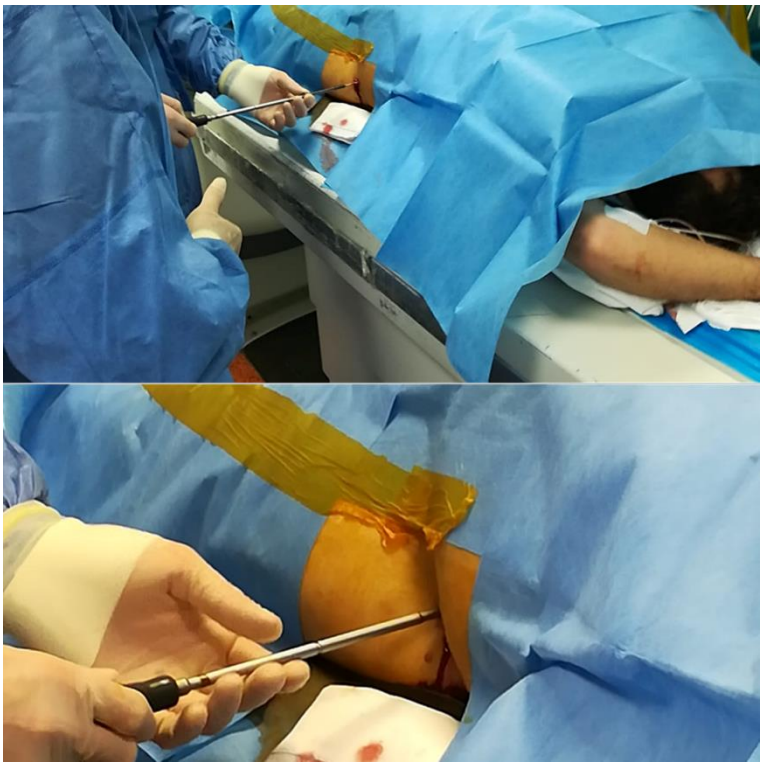

Figure 10 Insertion of the cannulated screw and final twist

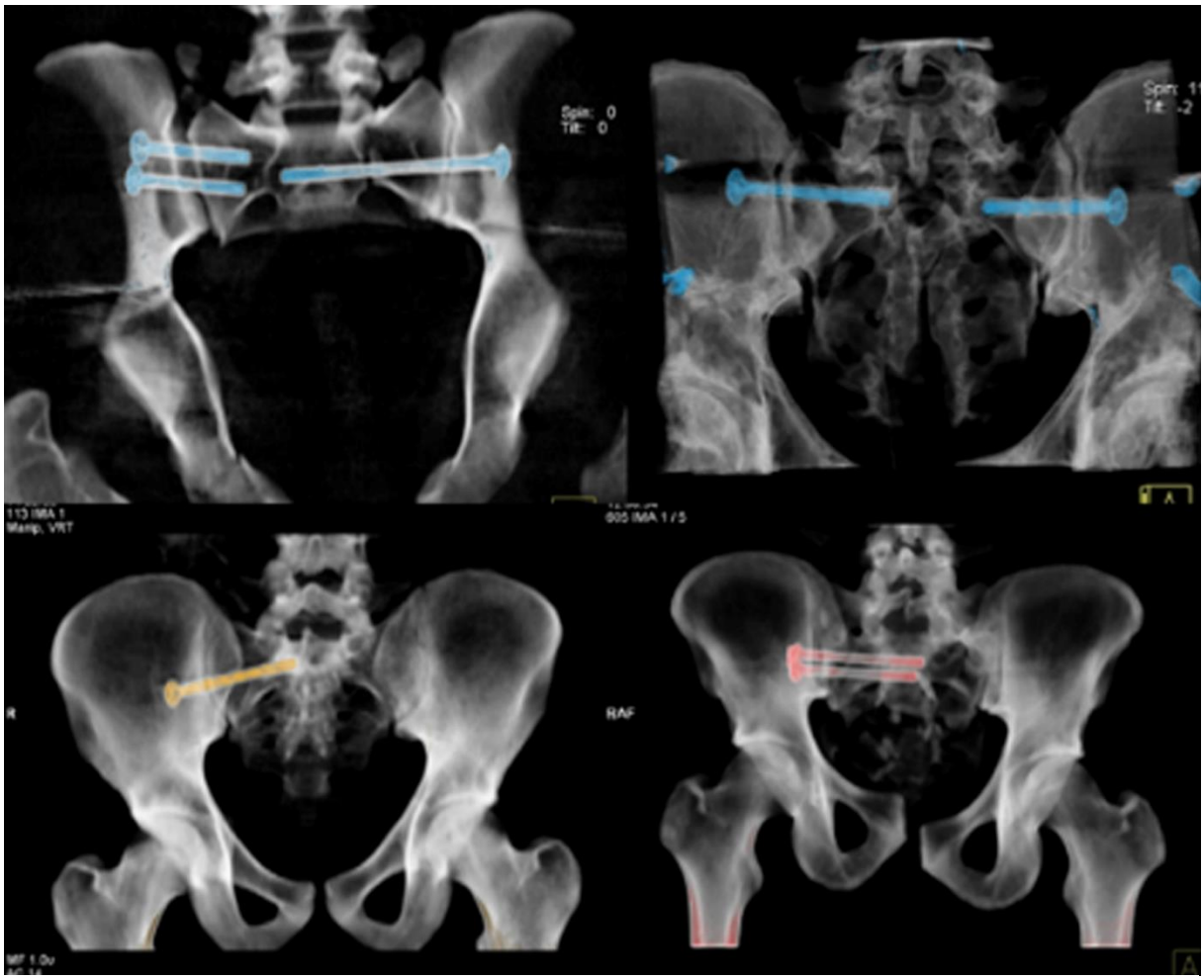

Figure 11 VRT reconstructions of the pelvis with the screws

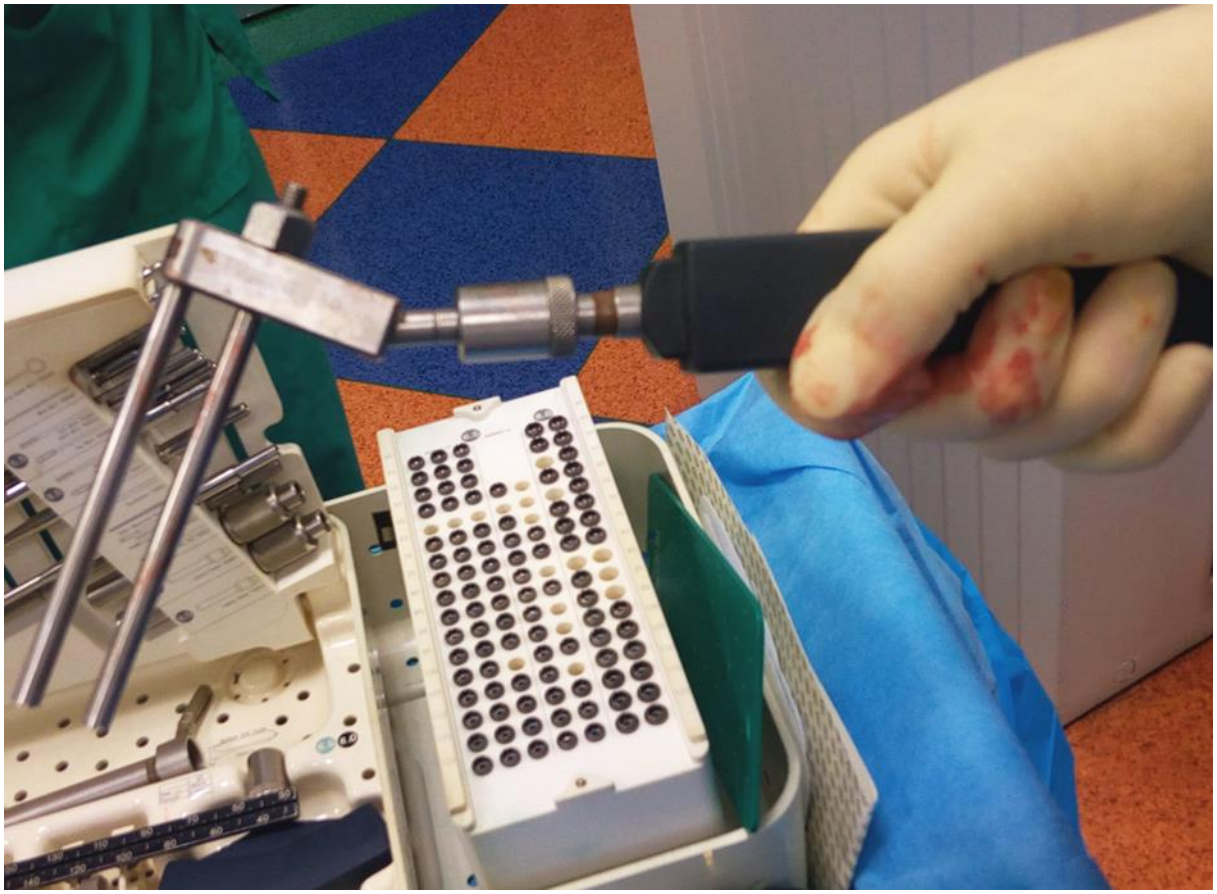

Figure 12 parallel guide

Table 1: Outcome

OPERATION DAY		12/12/13	10/01/14	22/01/14	19/02/14	11/02/15	26/02/15	25/03/15	04/05/15	03/09/15	06/10/15	22/12/15	27/07/16	12/10/16	28/03/17	13/04/17	11/05/17	31/08/18	29/11/18	14/02/19
PATIENT		**1**	**2**	**3**	**4**	**5***	**6**	**7#**	**8**	**9@**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**	**18**	**19**
1 WEEK	G	0	0	0	2	0	0	†	0	0	0	0	0	0	0	0	0	0	0	0
	M	0	0	0	2	0	0	†	0	0	0	0	0	0	0	0	0	0	0	0
	A	1	1	1	0	1	2	†	1	2	1	1	1	2	1	2	1	1	1	2
	P	1	1	2	0	1	0	†	2	3	1	1	3	1	1	2	1	1	1	1
2 MONTHS	G	2	2	2	3	2	2	†	2		2	2	1	2	2	2	2	2	2	2
	M	2	2	2	3	2	2	†	2		2	2	1	2	2	2	2	2	2	2
	A	1	1	1	0	1	2	†	1		1	1	1	2	1	2	1	1	1	2
	P	0	0	0	0	0	0	†	0		0	0	0	0	0	0	0	0	0	0
6 MONTHS	G	3	3	3	3	3	3	†	3		3	3	2	3	3	3	3	3		
	M	3	3	3	3	3	3	†	3		3	3	3	3	3	3	3	3		
	A	1	1	1	0	1	2	†	1		1	1	1	2	1	2	1	1		
	P	0	0	0	0	0	0	†	0		0	0	0	0	0	0	0	0		
12 MONTHS	G	3	3	3	3	3	3	†	3		3	3	3	3	3	3	3			
	M	3	3	3	3	3	3	†	3		3	3	3	3	3	3	3			
	A	1	1	1	0	1	2	†	1		1	1	1	2	1	2	1			
	P	0	0	0	0	0	0	†	0		0	0	0	0	0	0	0			
24 MONTHS	G	3	3	3	3	3	3	†	3		3	3	3	3						
	M	3	3	3	3	3	3	†	3		3	3	3	3						
	A	1	1	1	0	1	2	†	1		1	1	1	2						
	P	0	0	0	0	0	0	†	0		0	0	0	0						

Legend:
G (gait), M (mobility), A (asymmetry), P (pain).

RATING; 0 absent, 1 not very present, 2 present, 3 very present

* No trauma, # died due to the severity of the trauma, @ location of the screw and new operation 10/15/2015

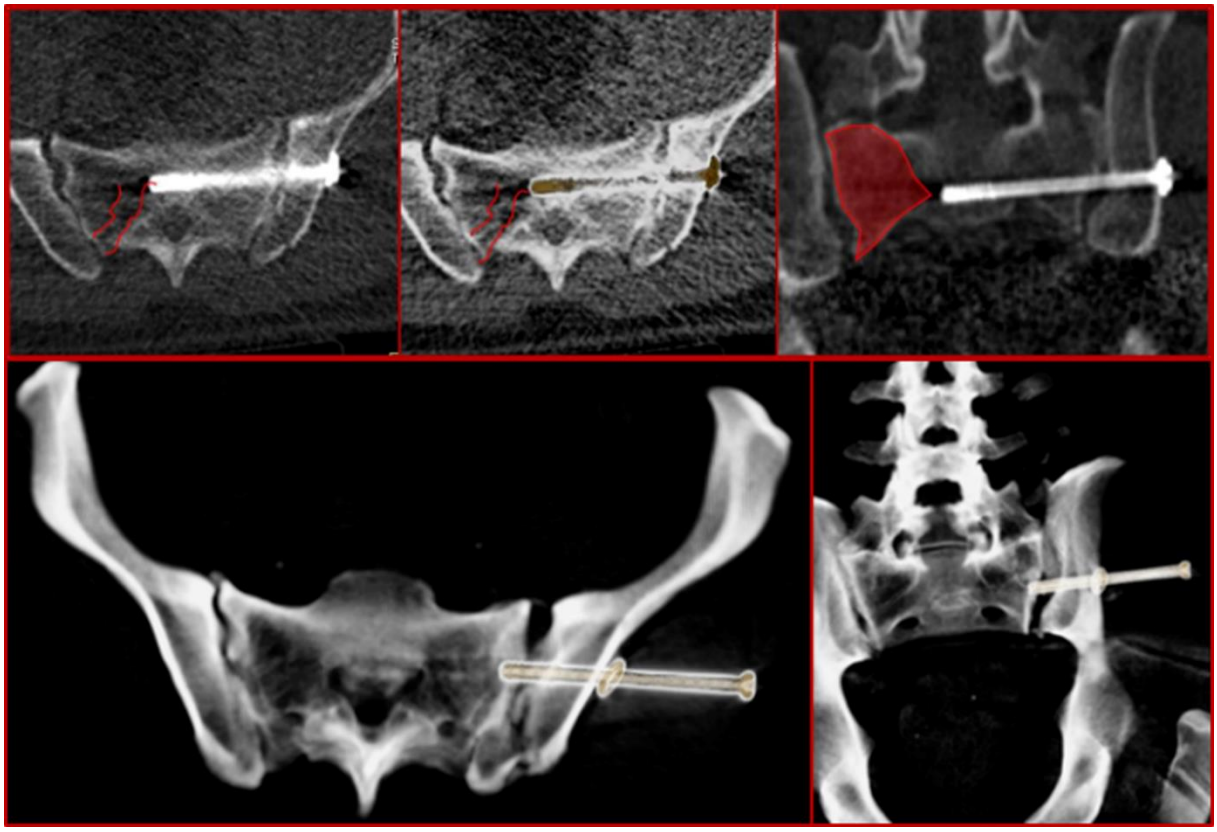

Figure 13 unacknowledged fracture and dislocated screw

Table 2: Accuracy

Authors	Article	Patients	Accuracy
Nelson DW, D.P.	"CT-guided fixation of sacral fractures and sacroiliac joint disruptions" - 1991	8	100%
Duwelius PJ, V. A.	"Computed tomography-guided fixation of unstable posterior ring disruption" - 1992	13	100%
Ziran BH, S. W.	"Iliosacral screw fixation of the posterior pelvic ring using local anaesthesia and computerised tomography" - 2003	-	100%
Berton R. Moed, B. L.	"MDw S2 Iliosacral Screw Fixation for Disruptions of the Posterior Pelvic Ring: A Report of 49 Cases" – 2006	49	98%
Gandhi G. et al.	"Estabilizacão sacroilíaca percutânea guiada por tomografia computadorizada nas fraturas pélvicas instáveis: uma técnica segura e precisa" - 2017	6	100%
Spanò F. et Al	**"**CT-guided sacroiliac screws placement**"-** 2019	19	100%