Table 2. The extension of the defects needs to be grafted

Area	Size of the defects
Orbit	3 cm
Zygoma	3cm-5cm
Maxilla	2cm-4cm
Mandible	4cm-10cm

For the maxilla, there were totally 3 cases, 2 cases with alveolar cleft and 1 case with trauma to the alveolar ridge due to shell injury.Intra-oral approach was used and we inserted a monocortical corticocancellous bone graft to form an alveolar ridge in order to make an implant for the upper jaw. Size of the defect ranged from 2-4 cm.

For the mandibular bone defects, there were a total number of 9 patients operated for reconstruction of mandible, caused by RTA, shell injuries and ameloblastoma. The types of bone graft used were either cortico-cancellous bone graft, monocortical or bicortical, or chips of cancellous bone graft inserted in osteomesh tray at the defect site. The approach was always conducted through submandibular incision, and immobilization of the mandible was done by arch bar and interaxillary fixation for at least 4 weeks (between 4-6 weeks). Size of the defects ranged from 4cm –10 cm.

The patients were operated for bone graft taken from anterior iliac crest by two approaches; in 13 patients, we used medial approach, and in 7patients, we used lateral approach. A trapdoor osteotomy technique was usedfor all of the patients by retracting the skin by the assistant and incision was extended through the skin and periosteum to the crest of the ilium so that the incision lies lateral to and below the crest. The periosteum was reflected and raised with periosteal elevator. By vertical sectioning of the portion of the crest between the vertical cuts, a section of cortical table with its underlying cancellousbone was done. When cancellous bone alone was needed, an osteotomy was made over the central portion of the iliac crest and a wedge of cancellous bone is resected. The outer and inner tables of the ilium were then fractured toward each other with heavy forceps in order to eliminate the resulting dead space between them. This technique did not disturb the continuity of the crest and left no visible deformity. The amount of bone volume was measured visually. The drain was inserted and removed later when the amount of blood was less than 20 cc, removed from the donor site.

Results

The age of the patients (Table 3) with bone graft for reconstruction of facial defects ranged between 12 and 59 years. The mean age of the patients was 33.6 years. The male percentage operated on were 65% (13 males), and the percentage of females were 35% (7 females).

Table 3. Age of the patients

Age range (yrs)	No.	%
10 – 20	2	10
20 – 30	3	15
30 – 40	12	60
40 – 50	2	10
50 – 60	1	5
Total	20	100

The anatomical region distribution for facial defects that required bone graft were as follows: for orbit defects,20%, zygomatic defects, as shown in Fig.8 and 9, 20%, maxillary defects (Fig.1,2 and 6) 15% and mandibular defects (Fig. 8)45%.

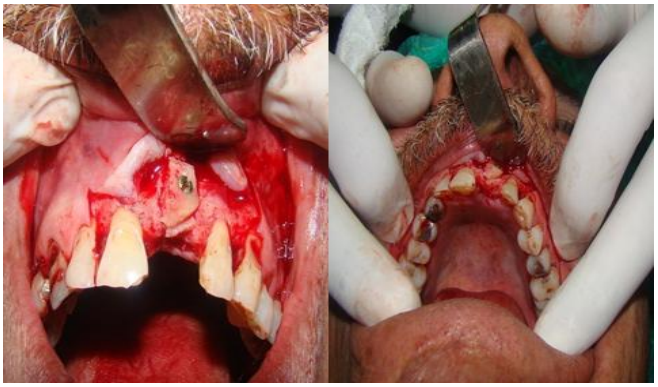

Fig. 1. Bone graft inserted to the alveolar bone and fixed by screw only to prepare a bed for dental implant. The cause of this defect was due to shell that caused avulsion of the left central incisor tooth and a part of the alveolar bone.