Purpose:

To evaluate the safety and efficacy of the transcaruncular approach for reconstruction of medial orbital wall fractures and the combined transcaruncular-transconjunctival approach for reconstruction of giant orbital defects involving the floor and medial wall.

Methods:

Isolated medial orbital wall fractures were accessed via a transcaruncular approach. The incision was made through lateral part of the caruncle or between the caruncle and plica semilunaris, and carried down in a preseptal plane to the medial orbital wall. Fractures involving the medial wall and floor were accessed via a lateral canthotomy, a transconjunctival incision with preseptal dissection plane and a transcaruncular incision. Isolated medial wall fractures were reconstructed with a Medpor implant (porous high density polyethylene, Porex Surgical GA), and combined floor and medial wall fractures with a Medpor Titan implant (titanium mesh coated with high density porous polyethylene, Porex Surgical GA).

Results:

Clinical and radiographic data were analyzed for 6 patients with isolated medial wall fractures and 7 patients with combined floor and medial wall fractures. The most common mechanism of injury was interpersonal violence (n=9). All patients with isolated medial wall fractures presented with enophthalmos; in the combined floor & medial wall group, 5 patients had enophthalmos with 2 also having vertical dystopia. The size of the medial wall defect on preoperative CT scan ranged from 2.4 to 4.08 cm²; the defect size of combined floor & medial wall fractures was 7.21 to 12.98 cm². Postoperative CT scans were obtained for 3 of 6 medial wall fractures and for all 7 of the combined floor and medial wall repairs. Nine implants were seen to be in anatomically correct position. One implant missed the superomedial ledge with the edge of the implant resting in the ethmoid sinus. Postoperatively, all patients had correction of enophthalmos and vertical dystopia. One patient developed a retrobulbar hematoma two days post operatively, which required operative evacuation. Two patients developed increased tear drainage, which resolved with expectant management.

Conclusions:

The transcaruncular approach is a safe and effective method for reconstruction of medial orbital floor fractures. Even giant fractures involving the orbital floor and medial wall can be adequately exposed and reconstructed with a combined transcaruncular-transconjunctival-lateral canthotomy approach. The surgical technique and modifications to implants to optimize surgical results will be discussed.