PREOPERATIVE DIAGNOSIS:, Metopic synostosis with trigonocephaly.,POSTOPERATIVE DIAGNOSIS:, Metopic synostosis with trigonocephaly.,PROCEDURES: ,1. Bilateral orbital frontal zygomatic craniotomy (skull base approach).,2. Bilateral orbital advancement with (C-shaped osteotomies down to the inferior orbital rim) with bilateral orbital advancement with bone grafts.,3. Bilateral forehead reconstruction with autologous graft.,4. Advancement of the temporalis muscle bilaterally.,5. Barrel-stave osteotomies of the parietal bones.,ANESTHESIA: , General.,PROCEDURE: , After induction of general anesthesia, the patient was placed supine on the operating room table with a roll under his shoulders and his head resting on a foam doughnut. Scalp was clipped. He was prepped with ChloraPrep. Incision was infiltrated with 0.5% Xylocaine with epinephrine 1:200,000 and he received antibiotics and he was then reprepped and draped in a sterile manner.,A bicoronal zigzag incision was made and Raney clips used for hemostasis. Subcutaneous flaps were developed and reflected anteriorly and slightly posteriorly. These were subgaleal flaps. Bipolar and Bovie cautery were used for hemostasis. The craniectomy was outlined with methylene blue. The pericranium was incised exposing the bone along the outline of the craniotomy.,Paired bur holes were drilled anteriorly and posteriorly straddling the metopic suture. One was just above the nasion and the other was near the bregma. Also bilateral pterional bur holes were drilled. There was a little bit of bleeding from a tributary of the sagittal sinus anteriorly and so bone wax was used for

hemostasis in all the bur holes.,The dura was separated with a #4 Penfield dissector and then the craniotomies were fashioned or cut. I should say with the Midas Rex drill using the V5 bit and the footplate attachment, the bilateral craniotomies were cut and then the midline piece was elevated separately. Great care was taken when removing the bone from the midline. Bipolar cautery was used for bleeding points on the dura and especially over the sagittal sinus and the bleeding was controlled.,The wound was irrigated with bacitracin irrigation.,The next step was to perform the orbital osteotomies with careful protection of the orbital contents. Osteotomies were made with the Midas Rex drill using the V5 bit in the orbital roof bilaterally. This was a very thick and vertically oriented orbital roof on each side. Midas Rex drill and osteotomes and mallet were used to cut these osteotomies using retractors to protect the orbital contents and the dura. The osteotomies were carried down through the tripod of the orbit and down through the lateral orbital rim and all the way down to the inferior orbital rim using the osteotome and mallet. Bone wax was used for hemostasis. It was necessary to score the undersurface of the bone at the midline because it was so thick and pointed. So we were not going to be able to effect the orbital advancement without scoring the bone and thinning it out a bit. This was done with the Midas Rex drill using B5 bit. Also, the marked ridge just above the nasion was burred down with the Midas Rex drill. The osteotomies were also carried down through the zygoma. At this point, with a gentle rocking motion and sustained

pressure using the osteotomes, it was then possible to carefully advance the orbital rims bilaterally, first on the right and then on the left again using just a careful rocking motion against the remaining bone to gently bend the orbital rims outward bilaterally.,Dr. X cut the bone grafts from the bone flaps and I fashioned a shelf to secure the bone graft by burring a ledge on the internal surface of the superior orbital rim. This created a shelf for the notched bone graft to lean against basically anteriorly. The posterior notch of the bone graft was able to be braced by the ledge of orbital roof posteriorly.,The left medial orbital rim greenstick fractured a bit, but the bone graft appeared to stay in place.,Holes were then cut in the supraorbital rim for advancement of the temporalis muscle and then a Synthes mesh was placed anteriorly using absorbable screw hardware and attached the mesh where the forehead bone flaps turned around and recontoured to make a nice bilateral forehead for Isaac.,At this point the undersurface of the temporalis muscle was scored using the Bovie cautery to allow advancement of the muscle anteriorly and we sutured it to the supraorbital rims bilaterally with #3-0 Vicryl suture. This helped fill-in the indentation left by the orbital advancement at the temporal region.,Also, I separated the undersurface of the dura from the bone bilaterally and cut multiple barrel-stave osteotomies in the parietal bones and then greenstick fractured these barrel-staves outward to create a more normal contour of the bone slightly posteriorly.,At this point, Gelfoam had been used to protect the dura over the sagittal sinus during this part of

the procedure.,The wound was then irrigated with bacitracin irrigation. Bleeding had been controlled during the procedure with Bovie and bipolar electrocautery, even so the blood loss was fairly significant adding up to about 300 or 400 mL and he received that much in packed cells and he also received a unit of fresh frozen plasma.,At this point, the reconstruction looked good. The advancement was about 1 cm and we were pleased with the results. The wound was irrigated and then the Gelfoam over the midline dura was left in place and the galea was then closed with #4-0 and some #3-0 Vicryl interrupted suture and #5-0 mild chromic on the skin. The patient tolerated procedure well. No complications. Sponge and needle counts were correct. Again, blood loss was bout 300 to 400 mL and he received 2 units of blood and some fresh frozen plasma.