A case of successful outcome after serial amniocentesis in TTS

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Objective
To describe a case off successful serial amniocentesis in a twin- twin transfusion syndrome in with the mother for religious reasons didn’t accept the laser ablation therapy. The twin- twin transfusion syndrome (TTTS, also known as Feto-Fetal Transfusion Syndrome (FFTS)) and Twin Oligohydramnios -Polyhydramnios Sequence (TOPS)) is defined as a sequence off oligohydramnios/polyhydramnios in a monochorional gestation according to the sonographic criteria of oligohydramnios in the donor and polyhydramnios in the recipient twin. It complicates 10-20% off monochorional pregnancy. It is due to a hemodynamic disequilibrium between the two fetuses because off the presence off vascular communication between the two umbilical cords at the level off the unicus placenta. The progressive sequence is characterized by a situation off: hydramnios, polyuric, hypervolemia and hyperdynamic circulation in the receptor twin and a situation off oligohamnios, non-visible bladder hypovolemia and foetal growth restriction on the doner twin. The most commonly used TTTS staging system was developed by Quintero et al in 1999, and is based on sonographic findings. The TTTS Quintero staging system includes 5 stages, ranging from mild disease with isolated discordant amniotic fluid volume to severe disease with demise of one or both twins. This system has some prognostic significance and provides a method to compare outcome data using different therapeutic interventions. Quintero Staging System as follows: Stage I: meets criteria for TTTS without the ultrasound findings of the more advanced stages, Stage II: bladder of the donor twin not visible, normal Doppler’s, Stage III: critically abnormal arterial or venous Doppler in either twin (absent end-diastolic velocity in the umbilical artery, reverse or absent end-diastolic flow in the ductus venosus, pulsatile umbilical venous flow), Stage IV: hydrops fetus in either twin, Stage V: demise of one or twin. Selective laser ablation of the placental anastomotic vessels by fetoscopic surgery is consider the gold standard off treatment independently off Quintero’s stage. With a rate off survival off at least one twin off 80-90% and off 60 % for survival off both. The risk off neurologic morbidity off the surviving fetus is inferior to 5 – 10%. Other treatments options includes: serial amniocentesis, septostomy (also known as microseptostomy), selective cord coagulation, radiofrequency ablation. Of the various treatment approaches that have been considered for TTTS, the 2 that are currently considered the most viable are selective laser photocagulation of communicating vessels through operative fetoscopy and serial amniocentesis. In our center as we don’t have laser ablation as treatment option and being that the best option we offer the patient the possibility of going to the Fetalmedicine Center in London or to the Clinic Hospital in Barcelona to do the treatment. We offer serial amniocentesis in the rare case were patients for any reason refuse the laser ablation. Serial amniocentesis (or amnioreduction) is a technically simple procedure that involves drainage of amniotic fluid from the polyhydramnionic recipient sac using vacuum-assisted devices attached to an 18 to 20 gauge spinal needle with ecographic visualization and active aspiration. In the Eurofetus study the survival off the two fetos is off 50%; and off 60% for at least one the rate off neurologic complication is between 20 and 40%. The volume of amniotic fluid that should be withdrawn has not been standardized, although usually the MVP in the recipient sac is brought down to approximately 8 cm or less. Serial amniocentesis serves to significantly reduce the amount of amniotic fluid volume in the recipient sac, thereby diminishing overall uterine distention. However, this procedure serves to ameliorate only 1 symptom of TTTS, namely polyhydramnios, and does not treat the underlying disorder. Because theoffending vascular communications remain patent, the physiologic stress of the syndrome to the fetuses is allowed to persist throughout pregnancy.

Methods
This study consist in a case report off a late –onset twin- twin transfusion syndrome treated with serial amniocentesis.

Results
RSGC 21 years old; IO: 000 BRH+; Obese; allergic to dipirono no other relevant in the personal history; Spontaneous twin monochorionic/ biamniotic pregnancy. Refered to our hospital at 14 week (Hospital Garcia da Orta – Lisboa; Portugal). Diagnose off gestational diabetes in the first trimester; with bad glycaemic control; doing insulin 16U. First-trimester screening was not performed. Early morphologic second trimester scan were normal. Foetal echocardioemgram were normal. Diagnose of TTTS at 22w+3d (Twin A: 426gr; polyhydramnios. Twin B: 258gr; oligoamnios; (stuck-twin), non-visible bladder). It was not possible to do the hemodynamic study because off extreme maternal obesity and polyhydramnios. The diagnose and prognostic was discussed with the patient and it was offered the possibility off laser ablation. For religious motives the patient refused intervention. A week after with the development off hydramnios the patient started getting symptomatic with dyspnoea, with that she still refused laser ablation but understanding the relationship between the dyspnoea and the polyhydramnios accepted reduction amniocentesis with was performed with the redraw off 950 cc of amniotic fluid. Scan at 23w+3d: Twin A: visible bladder, polyhydramnios. IP elevated in the UA (umbilical artery), IP elevated in the DV (ductus venosus). Twin B: stuck –twin but with normal dynamic; non visible bladder. Absent end-diastolic velocity in the umbilical artery; IP elevated the venous duct but with positive “a” wave. Quiteros’ stage III. Amnioreduction was performed with an 18 gauge spinal needle under sonographic visualization and active aspiration with the redraw off 950 cc off amniotic fluid (Amniotic fluid karyotype showed a normal 46, XX); antibiotic prophylaxis and tocolysis with diclofenac were performed. A week after at reevaluation there where overlapping sonographic findings. It was performed another amnioreduction with the redraw off 1200 cc off amniotic liquid. After that there was a balance in the amniotic liquid with normalization in both twins. There was also an improvement in arterial and venous Doppler parameters. Scan at 25 w + 1 day: Twin A: 728gr (P27, 4); visible bladder, normal liquid, IP elevated in the UA and in the DV both with positive end-diastolic flow, Twin B: 525 gr (P1, 2) visible bladder, normal liquid, IP elevated in the UA and in the DV but both with positive end-diastolic flow, Quintero’s stage II. Subsequent scans maintained at Quintero’s stage II. At 27w + the patient initiated contractions and was admitted with the diagnosis of preterm threatened labour. At admission it was performed foetal lung maturation with betamethasone, tocolysis with Atosiban and foetal Neuroprotection with MgSO4. Preterm labour occurred at 27w+5d, as both twins were in vertex presentation a normal vaginal delivery was performed (Twin A: IA 9/10; weight 935gr; ph. 7, 35, Twin B: IA 9/10; weight 640gr; ph. 7, 40). Both new-borns were admitted to a neonatal intensive care unit with good development in the first month after birth.

Conclusion
Scientific evidence points that laser ablation is the first line off treatment in the case off TTTS with higher rates off both twin survival; one twin survival and off better neurodevelopmental outcome and every effort should be done to offer that treatment. Since the Eurofoetus randomized trial demonstrating better results after fetoscopic laser than after serial amnioreduction, patients should be offered laser therapy as a primary intervention. Any other approach should be based on very individual conditions. It is important to stress that laser coagulation is more effective than drainage on a stage basis. The median gestational age at delivery was also significantly higher in the laser group than in the
amnioreduction group and that may have played a role on this case, although twin pregnancy are more prone to preterm labor independently. In this case beyond the amelioration of the amniotic volume there was also amelioration of the hemodynamic parameters after the procedure. Although reduction amniocentesis is not the first line of treatment for TTTS it is still a viable solution in the circumstances where for any reason it is not possible to perform laser ablation.