

Non-Obstructive Azoospermia Aided by Autologous Stem Cells

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Abstract

Background: This case presentation of an Iraqi infertile adult man assisted to be fertile by autologous stem cells.

Case presentation: a 35 years old Iraqi infertile adult man suffered from thirteen years of idiopathic infertility. He had a BMI of 27 % with no notable surgical, medical, or family history. Also, he did many laboratory tests that confirmed non-obstructed azoospermia plus low male hormones. He visited many urologists and prescribed various drugs with a negligible retort. We aspirated bone marrow stem cells from his hip, then cultured the cells in our laboratory. Then re- injected the cells in his testis five times in a two weekly interval. We tested seminal fluid count after each injection, which showed a progressive rise to (less than one million sperm/ml). Then we amassed patient semen for in vitro fertilization. Finally, the couple gained a healthy twin.

Conclusions: applying autologous stem cells to males who had confirmed Non-obstructive azoospermia can assist in verified outcomes.

Keywords: infertility, azoospermia, autologous, stem cells

Introduction

Male infertility denotes a male unable to have a pregnancy with his wife. Further, non-obstructive azoospermia conveys no sperm in man semen. Moreover, oligospermia implies below twenty million sperm per ml. Severe oligospermia tells below five million sperm/ml. Non-obstructive Azoospermia emerged from mumps, genetic elements, testicular trauma, toxins, and certain drugs (Kasak & Laan, 2021).

Subsequently, the healthcare professionals advise them to reduce weight, avoid vasectomy, avoid tight clothes that cause testicular heat, stop alcohol and smoking, avoid exposure to pesticides and heavy metals (Alkandari & Zini, 2021).

The earlier investigators of Stem cells exhorted them in vitro to forge miscellaneous specialized cells. Subsequently, some researchers achieved artificial gametes cells/oocytes and

sperms from stem cells in the last fifteen years. Furthermore, this success had potential use in reproductive medicine (Abdelaal et al., 2021).

To our best of acquaintance and quest, this case presentation of an Iraqi infertile adult man assisted to be fertile by autologous stem cells is the first Iraqi success in Iraq. Accordingly, Dr. Ahmad Alkhyaat (the manager of “Al-Zahrawy Center for Stem Cells in Baghdad”) is the first Iraqi scientist gained a significant outcome from this project.

Case Report

A 35 years old Iraqi infertile adult man suffered from thirteen years of idiopathic infertility. He had a BMI of 27 % with no notable surgical, medical, or family history. Also, he did many laboratory tests that confirmed non-obstructed azoospermia

plus low male hormones. He visited many urologists and prescribed various drugs with a negligible retort. We aspirated bone marrow stem cells from his hip, then cultured the cells in our laboratory. Then re-injected the cells in his testis five times in a two weekly interval. We tested seminal fluid count after each injection, which showed a progressive rise to (less than one million sperm/ml). Then we amassed patient semen for in vitro fertilization. Finally, the couple gained a healthy twin.

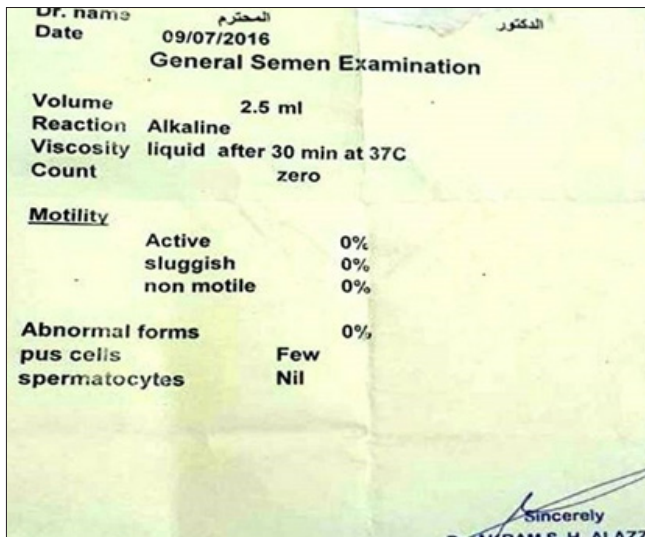


Figure 1: the seminal analysis at presentation.

Hormones	Result	Men
S.FSH (mIU/ml)	41.1	1.7 - 12
S.LH (mIU/ml)	11.7	1.1 - 7
S.Progesterone (ng/ml)		0.11 - 0.5
S.estradiol (pg/ml)		< 62
S.Prolactine (ng/ml)	16.8	1.5 - 19
S.testo. (Ng/ml)	2.3	3 - 10
B. HCG (miu/ml)		

Figure 2: the hormonal test before stem cell therapy.

Here, the reader shows the abnormality of our patient sex hormones. Hence, the high serum Follicle-stimulating hormone and Luteinizing Hormone confirm a diagnosis of the primary gonadal failure. Subsequently, the low serum Testosterone in this patient, suggests hypogonadotropic hypogonadism because of impaired function of testes.

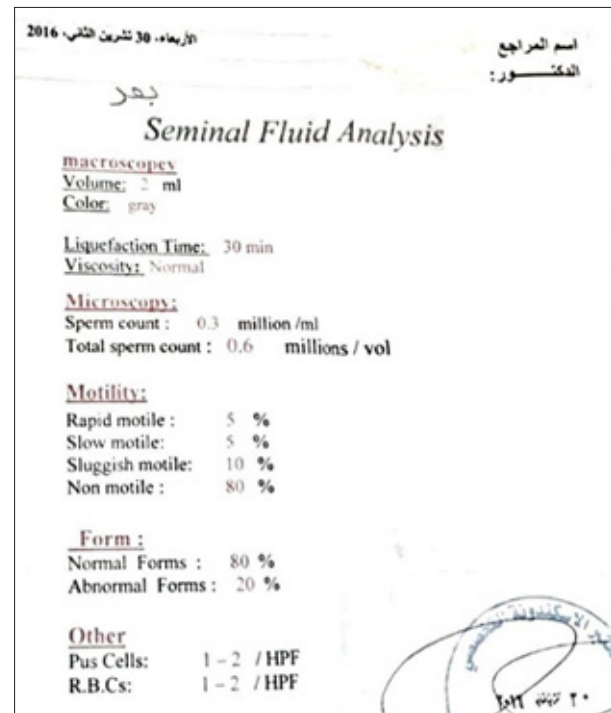


Figure 3: the seminal analysis four months after stem cells injection.

Discussion

In this case report, a 35 years old Iraqi infertile adult man suffered from thirteen years of idiopathic infertility. Henceforth, it is usual for a couple in Iraq to search for childbirth after marriage because Iraqi people are fertile with large family sizes. Hence, this man had no remarkable past medical and surgical history of testicular or general health problems. Subsequently, this couple searched for the cause in many doctors inside and outside Iraq. So, they discovered man infertility due to non-obstructive azoospermia that does not respond to the usually stipulated hormonal stimulants (Caroppo & Colpi, 2021).

The specialized doctor on man infertility, especially the non-obstructive azoospermia, prescribed various drugs according to patient semen analysis. Hence, the doctors aimed to revert the semen to a higher level to achieve an adequate level for gestation. These drugs (mostly are hormones) incorporate Human chorionic gonadotropin (HCG), Anastrozole, Follicle-stimulating hormone (FSH), Letrozole, and Clomiphene (Laursen et al., 2019).

Dr. Ahmad Alkhyaat as the (Manager of Al Zahrawy Center for Stem Cells in Baghdad) has his unique aseptic technique in a scientific method. Figure 1. Shows the seminal fluid analysis of our patient. Moreover, Dr. Ahmad Alkhyaat asked our patient's consent to utilize stem cells to stimulate and enhance testicular production of sperms. Furthermore, our patient asked for more clarifications of the procedure and its outcome. Hereafter, Dr. Ahmad Alkhyaat discussed the stem cells updates and the national studies concerning this technique. After that, our patient accepted the procedure and verbally consented to it. Figure. 2 clarify the hormonal test before stem cell therapy.

Henceforward, Dr. Ahmad Alkhyaat aspirated the bone marrow stem cells from our patient's hip then cultured these cells in well-equipped laboratory updated stem cells culture tools. Subsequently, Dr. Ahmad Alkhyaat re-injected the stem cells in the patient's testis five times in two weekly intervals.

For more additional chances of conquest, Dr. Ahmad Alkhyaat gave a single intramuscular injection of Sustanon 250 (250 mg/ml) (SWISS REMEDIES)® every three weeks. Furthermore, Dr. Ahmad Alkhyaat ordered Six Sustanon injections (Hallak et al., 2020). After six months, there was an increase in serum Testosterone level, serum FSH, LH returned to normal levels. Grievously, the laboratory paper of this patient was lost.

Figure 3: clarify the seminal fluid of the same male patient after four Intratesticular injections of autologous stem cells in the fourth month. Hence, the reader shows a noteworthy advancement to (0.3 million sperm/ml). Moreover, the volume is somewhat small, which may tell a problem in the emission phase (in which the semen is collected in the urethral bulb and ejaculated).

Accordingly, there are many causes of low ejaculate volume like low male hormonal levels, Weak pelvic muscles, retrograde ejaculation, or Perceived ejaculate volume reduction (Sulochana & Madhumithra, 2021).

The liquefaction time is thirty minutes, which is an abnormal finding. Hence, the usual time of semen liquefaction to alter from a thick gel to a liquid is twenty minutes. But, the long liquefaction time could imply a semen infection. Subsequently, the semen liquefaction time is detrimental to male sperms (Zurlo et al., 2018).

The microscopic finding is clear, in which 0.6 million sperm/volume. In our case, there are no past testicular or general history issues. So, the medical causes of low sperm count in our case might be anti-sperm antibodies or low male hormones. Hence, psychological troubles like depression and emotional stress could be present due to the long infertility duration (Iordachescu et al., 2021).

The sperm motility denotes eighty percent of non-motile sperms, ten percent of sluggish sperms, five percent of each of the rapid and slow motility sperms. Further, these disappointing results did not demoralize our urge to help this patient. So, we asked the patient to gather his semen for in vitro fertilization. He accepted the idea and gained a healthy twin.

Conclusions

Applying autologous stem cells to males who had confirmed Non-obstructive azoospermia can assist in verified outcomes.

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Ethical Approval: Ethical approval by oral patient consent.

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Availability of data and materials: All are available if required.

Authors' contributions

Dr. Ahmad Mansour Hamad (Dr. Ahmad Alkhyaat): responsible of case information.

References

1. Kasak, L., & Laan, M. (2021). Monogenic causes of non-obstructive azoospermia: challenges, established knowledge, limitations and perspectives. *Hum Genet, 140*(1), 135-154. <https://doi.org/10.1007/s00439-020-02112-y>
2. Alkandari, M. H., & Zini, A. (2021). Medical management of non-obstructive azoospermia: A systematic review. *Arab Journal of Urology, 19*(3), 215-220. <https://doi.org/10.1080/2090598X.2021.1956233>
3. Abdelaal, N. E., Tanga, B. M., Abdelgawad, M., Allam, S., Fathi, M., Saadeldin, I. M., Bang, S., & Cho, J. (2021). Cellular Therapy via Spermatogonial Stem Cells for Treating Impaired Spermatogenesis, Non-Obstructive Azoospermia. *Cells, 10*(7), 1779-1788. <https://doi.org/10.3390/cells10071779>
4. Caroppo, E., & Colpi, G. M. (2021). Hormonal Treatment of Men with Nonobstructive Azoospermia: What Does the Evidence Suggest? *J Clin Med, 10*(3), 387-394. <https://doi.org/10.3390/jcm10030387>
5. Laursen, R. J., Elbaek, H. O., Povlsen, B. B., Lykkegaard, J., Jensen, K. B. S., Esteves, S. C., & Humaidan, P. (2019). Hormonal stimulation of spermatogenesis: a new way to treat the infertile male with non-obstructive azoospermia? *Int Urol Nephrol, 51*, 453-456. <https://doi.org/10.1007/s11255-019-02091-8>
6. Hallak, J., Teixeira, T. A., & de Souza, G. L. (25 January 2020). Effect of Exogenous Medications and Anabolic Steroids on Male Reproductive and Sexual Health. In Sijo J. Parekattil, Sandro C. Esteves, & Ashok Agarwal. (Eds.), *Male Infertility: Contemporary Clinical Approaches, Andrology, ART and Antioxidants*(pp. 455-468). *Springer, Cham*. https://doi.org/10.1007/978-3-030-32300-4_35
7. Sulochana, S., & Madhumithra, K. S. J. (2021). A Demographic Study of male infertility and Analysis of semen parameters. *Research Journal of Pharmacy and Technology, 14*(10), 5072-6. <https://doi.org/10.52711/0974-360X.2021.00884>
8. Zurlo, M. C., Cattaneo Della Volta, M. F., & Vallone, Federica. (2018). Predictors of quality of life and psychological health in infertile couples: the moderating role of duration of infertility. *Qual Life Res, 27*(4), 945-954. <https://doi.org/10.1007/s11136-017-1781-4>
9. Iordachescu, D. A., Gica, C., Vladislav, E. O., Panaitescu, A. M., Peltecu, G., Furtuna, M. E., & Gica, N. (2021). Emotional disorders, marital adaptation and the moderating role of social support for couples under treatment for infertility. *Ginekol Pol, 92*(2), 98-104. <https://doi.org/10.5603/GP.a2020.0173>

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