Experimental Pathology

Comparison of 5 cc and 20 cc Syringes on FNAC Yield of Spermatogenic cells of Goat Testis

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Objective: To compare yield of spermatogenic cells on Fine Needle Aspiration Cytology by 5 cc and 20 cc syringes on goat testis

Type of Study: Prospective, animal experimental

Place of Study: Islamabad Institute of Pathology and Azad Jammu Kashmir Medical College Muzaffarabad Azad Kashmir, Pakistan

Duration of Study: December 2011- January 2012

Material and Methods: Fine Needle Aspiration Cytology was performed on goat testis using 5 cc and 20 cc syringes. Five slides were made for each of 5 cc and 20 cc syringes (Total 10 slides). 10 passes were made for each aspirate of a slide. The slides were air dried and stained with Giemsa stain. Five optimal high dry (X400 magnification) fields on each slide were selected separately for spermatogonia and spermatozoa. They were counted in each of respective fields. After totalling of the counts, average counts of spermatogonia and spermatozoa per field were obtained on each slide. The average counts on five slides were then totaled and divided by five to obtain average count per field per slide count. A total of 100 fields were thus counted (For spermatogonia and spermatozoa 25 separate fields (50 fields) for each of 5 cc and 20 cc syringes).

Results: The average counts per field per slide on 5 cc and 20 cc syringes respectively for spermatogonia were 38.88 and 40.84; and for spermatozoa were 77.68 and 78.88. On cumulative 100 high power fields there was hardly any difference between 5 cc syringe and 20 cc syringe yields. These are essentially the same results and even do not require any statistical tests to prove their difference.

Conclusion: The yield of spermatogonia and spermatozoa was essentially the same for 5 cc syringe and 20 cc syringes. The increased vacuum negative pressure did not result in increased yield of spermatogonia and spermatozoa. 5 cc syringes which can be easily handled by one hand requiring no special instruments can bring adequate smears. Key Words: Male infertility, FNAC, Goat, Testis, Spermatogenesis, Syringes

Introduction

Fine Needle Aspiration Cytology (FNAC) is a useful technique for cell studies. It is frequently used for diagnosis of variety of types of diseases in human beings. FNAC is particularly used for diagnosis of benign versus malignant diseases. It is also used for checking the status of spermatogenesis in azoospermia. Different sizes syringes are used for aspirating the spermatogenic cells from testis. We compared the yield of FNAC yield of spermatogenic cells by 5 cc versus 20 cc syringes.

It was a prospective, animal experimental study carried out at Islamabad Institute of Pathology and Azad Jammu Kashmir Medical College Muzaffarabad Azad Kashmir, Pakistan.

Material and Methods:

A goat testis was obtained from a local butcher shop and kept in refrigerator at 4°C. The Fine Needle Aspiration Cytology (FNAC) was performed on it using 5 cc and 20 cc syringes. 10 passes were made for each FNAC aspirate for every slide. The slides were air dried and stained with Giemsa stain. Five optimal high dry (X 400 magnification) fields on each slide were selected and spermatogonia and spermatozoa were counted in each of these areas. After totaling of numbers in five high dry fields, average counts were obtained by dividing the counts by five. These average counts from five slides were summed and average
count per field per slide was calculated by dividing the figure by five.

The number of the spermatogonia and spermatozoa are given in table 1 and 2. In both types of syringe aspirates the numbers of spermatozoa were almost double the number of spermatogonia. The yields are compared in Table 3. There was no significant statistical difference on the yield of spermatogenic cells among the two groups.

**Results**

The aspirates from both types of syringes were quite cellular. However the cellularity varied from slide to slide and field to field. All stages of spermatogenesis were observed. It was easy to identify the most immature cells i.e. the spermatogonia and the most mature cells i.e. spermatozoa. The former was quite large and round containing a large nucleus with evenly diffusely distributed lightly stained chromatin while the later cells contained smaller, rectangular shaped darkly stained nucleus. (Figure 1) In well preserved cell the tails were also evident. (Figure 2) Separate fields were chosen for spermatogonia and spermatozoa as some fields contained more of each.

**Discussion**

Fine Needle aspiration Cytology (FNAC) is an easy technique to study the cell morphology and numbers.
of cells from different organs. No area of the body and no tissues are exempt. We have previously conducted several FNAC studies on variety of organs and tissues including brain, bone, soft tissue and spleen. 1-5 FNAC has been advocated to be incorporated in International Multiple Myeloma diagnostic criteria for its efficiency and simplicity. 6 Generally FNAC is used to rule in or out malignancy. Both primary and secondary malignancies are easily diagnosed by FNAC. Primary testicular tumors are easily diagnosed by FNAC.7 Similarly FNAC is used in cases of testicular involvement by lymphoma8. FNAC is also very useful in diagnoses of non-neoplastic diseases such as infections, degeneration, necrosis and metabolic disorders. FNAC is a very useful diagnostic modality in male infertility. 9,10 Many such patients present with azoospermia. As compared to FNAC testicular biopsy is more traumatic and painful procedure and perhaps may not be suited for small and atrophic testes for the fear of induction of fibrosis. On the other hand FNAC being easy and less traumatic is quite practical in such cases.

Various types of syringes are used for aspiration. 11 In this study we wanted to determine whether increased negative vacuum pressure will enhance the yield of spermatogenic cells in aspirates; 20 cc syringes with greater diameter and length creates more negative vacuum pressure than 5 cc syringes. We found no significant difference in the yields of spermatogenic cells between the two procedures suggesting that increasing the negative pressure does not improve the yields. We obtained more spermatozoa than spermatogonia with both types of syringes; the numbers were almost double in both cases. We chose two extremes of cells which are easily identifiable i.e. spermatogonia; the immature cell containing large nucleus with open chromatin and mature rectangular shaped spermatozoa with condensed chromatin.

As the yields of spermatogenic cells remain essentially the same with 5 cc and 20 cc syringes; the implication is important as 5cc syringes are easy to manipulate and handle with one hand and do not require special instruments to maintain negative pressure throughout the procedure.

Conclusion:
Both 5 cc and 20 cc syringes bring adequate aspirates. There is no statistical difference between the yields of both types of syringes thus suggesting that 5cc syringes will be quite adequate in getting good diagnostic material for evaluation of spermatogenesis.

References