Transmissible Venereal Tumor Treated with Autohemotherapy*

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ABSTRACT

Background: Transmissible venereal tumor (TVT) is a neoplasm of round cells, that affects exclusively the canine species. The etiology of the tumor is unknown, but the hystiocytic hypothesis is the more accepted. It is transmitted principally by the venereal form, but the implant of cells can cause the disease. The clinic signs of the neoplasia are typical and include tumoral friable mass (in shape of cauliflower), that bleed easily. The most common localization is external genitalia, but the tumor can appears in skin surface and other organs. TVT grows rapidly (progressive phase) after transplantation, followed by a static phase (without cell proliferation) and then may regress spontaneously (stage of regression). The regression of the neoplasia is associated with increased infiltration of T lymphocytes and macrophages in the tumor and characterized by increased apoptosis of tumor cells and fibrosis. The diagnosis of TVT is usually done by the physical aspect of the tumor, and confirmed by cytology or histopathology. TVT can be prevented by castration of the animals. The treatment of TVT is usually performed with vincristine, which has side effects, requires care in its application, and has a relatively high cost. Thus, new therapeutic low-cost alternatives are suggested, as is the case of autohemotherapy. The autohemotherapy technique consists of administration of autologous whole blood intramuscularly. In veterinary practice has been used successfully to treat bovine papillomatosis and other diseases. Probably the mechanism of action of autohemotherapy is to enhance organic immunity. This report aimed to evaluate the behavior of the transmissible venereal tumor in six dogs with naturally transplanted tumor after treatment with autohemotherapy.

Materials, Methods & Results: Six adult bitches were clinically examined and all presented transmissible venereal tumor located in external genitalia, acquired by natural transmission. Cytological examination confirmed the diagnosis of TVT. The bitches were kept in kennels by one week before treatment, and it was not observed natural regression of tumor mass. After this time the animals were submitted to treatment with autohemotherapy, which consisted of application of autologous whole blood in the gluteal muscles, at dose of 10 mL. The applications were made weekly for seven weeks. All tumors were measured before and after autohemotherapy and, also weekly during the treatment. All tumors were friable and bleeding easily, multilobulated, nodulares, cauliflower-like shape, pale-pink to pale red, with surface smooth or irregular. In some animals there were signs of secondary infection. In general, the measurement of tumor ranged from 3.0 cm to 7.1 cm before of autohemotherapy. After treatment it was observed, macroscopically, a decrease of the tumoral mass in three dogs.

Discussion: It was established as criterion for stopping treatment the time of seven weeks. Possibly if the treatment had been extended the regression could have been completed. Probably autohemotherapy increased immunity and, consequently, contributed to increase the body’s resistance against TVT, producing regression of tumoral mass. Therefore, the autohemotherapy led to macroscopic partial regression of the tumor in 50% of animals subjected to this treatment, stimulating further research in this area.

Keywords: blood, dogs, genital system, neoplasia, therapy.
INTRODUCTION

Transmissible venereal tumor (TVT) is a neoplasm of round cells, that affects exclusively the canine species [5]. It is transmitted by contact of tumor cells alive with mucous membranes [8,9], venereal transmissions however are the most common [5]. The etiology of the tumor is unknown, but the hystiocytic hypothesis is the more accepted [4]. TVT grows rapidly (progressive phase) after transplantation, followed by a static phase (without cell proliferation) [4,11] and then may regress spontaneously (stage of regression) [3,4,11]. This regression is associated with increased infiltration of T lymphocytes and macrophages [11] in the tumor and characterized by increased apoptosis of tumor cells and fibrosis [4].

The clinic signs of the neoplasia are tumoral friable mass that bleed easily. The most common localization is external genitalia [3,5,9,14,17].

The diagnosis of TVT is done by the physical aspect of the tumor, and confirmed by cytology or histopathology [3,7].

The treatment of TVT is usually performed with chemotherapy [2,4,12,17] and vincristine is one of more effective drugs, but has side effects, requires care in application [1] and has a relatively high cost [2]. Thus, new therapeutic low-cost alternatives are suggested, as is the case of autohemotherapy. This technique has been used to treat human and animal diseases successfully [6,10,13,15,16], and consists in the administration of autologous whole blood intramuscularly [6,13,15,16].

This report aimed to evaluate the behavior of the transmissible venereal tumor in six bitches with naturally transplanted tumor after treatment with autohemotherapy.

MATERIALS AND METHODS

Six adult bitches were clinically examined and all presented transmissible venereal tumor located in external genitalia, acquired by natural transmission. Cytological examination confirmed the diagnosis of TVT. After diagnostic confirmation, the bitches were treated with autohemotherapy, which consisted of the application of whole blood (taken from the jugular vein) in the gluteal muscles in a dose of 10 mL. The applications were made weekly for seven weeks. Tumoral masses were measured before, during and one week after treatment for observation of regression.

The quantitative results were analyzed with statistical software Sigma Stat using the nonparametric Kruskal-Wallis test with a significance level of $P < 0.05$.

RESULTS

All tumors, regardless of size, were friable, bled easily, and variables in relation to the shape and size. There was multilobulated tumors, nodulares, in shape of cauliflower, pale-pink to pale red, with surface smooth or irregular, with or without lobulation (Figures 1A, 2A, 3A). In some animals, there were signs of secondary infection characterized by the presence of purulent and serous secretion. In general, the measurement of tumor ranged from 3.0 cm to 7.1 cm. There was no statistically significant regression of the lesion ($P = 0.856$) before and after treatment with autohemotherapy.

DISCUSSION

It was observed, macroscopically, a decrease in tumoral mass (Figures 1B, 2B, 3B) in three dogs. The reduction in the size of the tumoral mass has been observed after the fifth and sixth week of treatment. As there was standardization of the number of applications of autohemotherapy in the animals, was established as criterion for stopping treatment the time of seven weeks. Possibly, if the treatment had been extended the regression could have been completed.

The autohemotherapy operates by promoting growth in the number of macrophage and induces an increase of organic immunity [10,15]. Probably this treatment has promoted the macroscopic partial regression of tumoral mass in three dogs treated with autohemotherapy (Figures 1B, 2B, 3B).

It is worth noting that the animals were not subjected to any treatment and, even if the decline had been influenced by the reduction of inflammation, it is known that the autohemotherapy enhances immunity [10] and, consequently, contributes to increase the body’s resistance against any aggression. It is pointed out also that the animals were kept in kennels by one week before treatment, and was not observed natural regression of tumor mass like described in one animal [3]. Therefore, it is suggested that the reduction of tumoral mass was influenced by autohemotherapy whose effects were observed after the fifth and sixth week of treatment (Figure 1B,2B, 3B). The autohemotherapy in association with homeopathy helped to treat one
dog with TVT [6], and has been used to treat other neoplasias in animals [13,16].

It was suggested that autohemotherapy led to macroscopic partial regression of the mass tumoral in 50% of animals subjected to this treatment, which stimulates the further development of research in this area. The autohemotherapy causes no side effects.

**Ethical approval.** This research was approved by the Ethics Committee on Animal Experimentation of the Federal University of Piaui, Teresina, Piaui, Brazil.

**Declaration of interest.** The authors report no conflicts of interest. The authors alone are responsible for the content and writing of the paper.
REFERENCES


