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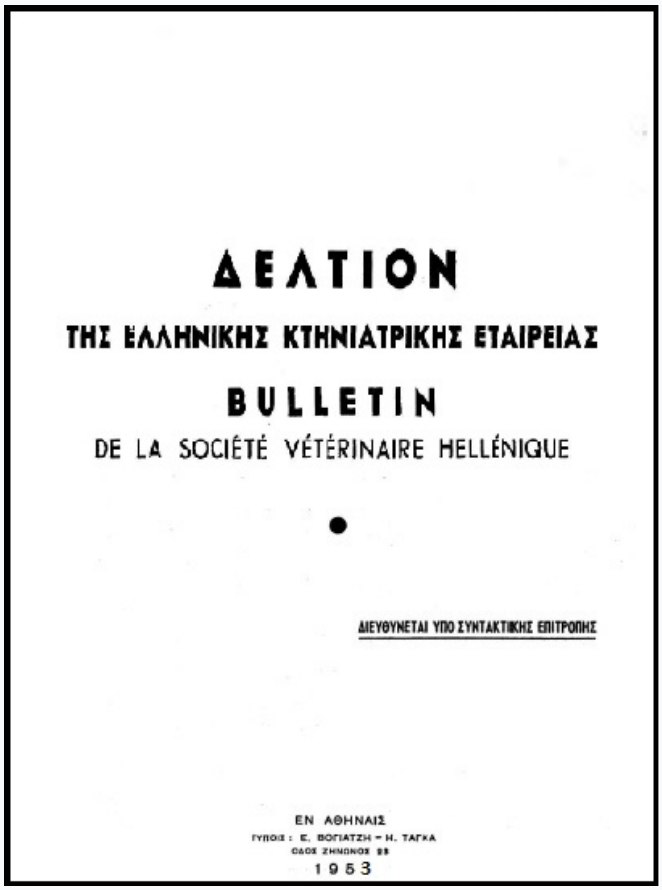

ΔΕΛΤΙΟΝ

ΤΗΣ ΕΛΛΗΝΙΚΗΣ ΚΤΗΝΙΑΤΡΙΚΗΣ ΕΤΑΙΡΕΙΑΣ

BULLETIN

DE LA SOCIÉTÉ VÉTÉRINAIRE HELLÉNIQUE

ΔΙΕΥΘΥΝΕΤΑΙ ΥΠΟ ΣΥΝΤΑΚΤΙΚΗΣ ΕΠΙΤΡΟΠΗΣ

ΕΝ ΑΘΗΝΑΙΣ

ΤΥΠΟΙΣ : Ε. ΒΟΓΙΑΤΖΗ – Η. ΤΑΓΚΑ

ΟΔΟΣ ΖΗΝΩΝΟΣ 28

1953

Η ΛΕΠΤΟΣΠΕΙΡΩΣΙΣ ΤΩΝ ΒΟΟΕΙΔΩΝ

J. Van der HOEDEN

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ΠΕΡΙΟΔΟΣ Β'. ΙΟΥΛΙΟΣ - ΣΕΠΤΕΜΒΡΙΟΣ 1953 ΤΕΥΧΟΣ 11ΟΝ

Τὸ κατωτέρω ἄρθρον ἐπὶ τῆς Λεπτοσπειρώσεως τῶν Βοοειδῶν ἐγράφη εἰδικῶς διὰ τὸ Δελτίον τῆς Ἑλλην. Κτηνιατρικῆς Ἑταιρείας ἀπὸ τὸν διακεκριμμένον ἐρευνητὴν κ. J. van der Hoeden Δ)τὴν τοῦ Κτηνιατρικοῦ Ἰνστιτούτου τοῦ Tel - Aviv (Ἰσραήλ), πρὸς τὸν ὁποῖον ἡ Ε.Κ.Ε. ἐκφράζει τὰς θερμοτάτας αὐτῆς εὐχαριστίας.

Η ΛΕΠΤΟΣΠΕΙΡΩΣΙΣ ΤΩΝ ΒΟΟΕΙΔΩΝ

Ὑπὸ

J. VAN der HOEDEN

Διευθυντοῦ

τοῦ Κτηνιατρικοῦ Ἰνστιτούτου τοῦ Ὑπουργείου Γεωργίας

Tel - Aviv (Ἰσραήλ)

Κατὰ τὰ τελευταῖα ἔτη νέον κεφάλαιον προσετέθη εἰς τὴν Κτηνιατρικὴν Παθολογίαν ἀφ' ἧς ἀπεδείχθη ὅτι ἡ Λεπτοσπείρωσις παρατηρεῖται πολὺ συχνότερον μεταξὺ τῶν κατοικιδίων ζώων ἀφ' ὅ,τι ἐνομίζετο μέχρι τοῦδε.

Πράγματι ἀφ' ἧς ἐν ἔτει 1915 ἀπεδείχθη ὅτι ἡ Λεπτόσπειρα ἦτο τὸ παθογόνον αἴτιον τοῦ νόσου τοῦ Weil, παρῆλθον 10 καὶ πλέον ἔτη ἕως ὅτου αὕτη ἀνευρεθῇ καὶ εἰς ἄλλα ζῶα πλὴν τῶν τρωκτικῶν.

Μετὰ τὴν διαπίστωσιν λοιμώξεως ὀφειλομένης εἰς διάφορα εἴδη Λεπτοσπείρας εἰς τὸν κύνα, ἐξηκριβώθη ἡ ὕπαρξις φυσικῆς λοιμώξεως εἰς τὴν γαλῆν, τὸν χοῖρον, τὸν ἵππον καὶ τὴν ἀργυρόχρουν ἀλώπεκα.

Ἡ Λεπτοσπείρωσις τῶν βοοειδῶν συναντᾶται διὰ πρώτην φορὰν εἰς τὴν Ρωσσικὴν βιβλιογραφίαν. Κατέστη ὅμως ταχέως προφανὲς ὅτι συχνάκις ὁ ἀριθμὸς τῶν κλινικῶς ἐκδήλων περιστατικῶν τῆς νόσου δὲν δύναται νὰ θεωρηθῇ ὡς κριτήριον τοῦ βαθμοῦ μολύνσεως τῆς ἀγέλης. Ἐνῷ δὲ πολλαὶ ἀγελάδες παρουσιάζουσιν ὑψηλὸν τίτλον συγκολλήσεως καὶ λύσεως ἔναντι τῆς προκαλούσης τὴν νόσον Λεπτοσπείρας, ὁ ἀριθμὸς τῶν κλινικῶς νοσούντων ζώων εἶναι λίαν περιωρισμένος. Ἐνίοτε μάλιστα παρατη-

ροῦνται θετικαὶ ὀροαντιδράσεις ἐπὶ ζώων ἐπὶ τῶν ὁποίων ἐν τούτοις οἱ τοπικοὶ κτηνίατροι οὐδέποτε διεπίστωσαν νοσηρὰς ἐκδηλώσεις Λεπτοσπειρώσεως.

Ἐξήγησις τῶν ἀφανῶν αὐτῶν λοιμώξεων δύναται νὰ εἶναι ἡ μείωσις τῆς φυσικῆς παθογονικῆς ἰσχύος τοῦ μικροοργανισμοῦ ἔναντι τοῦ ξενίζοντος αὐτὸν ζώου (π.χ. τῆς Λεπτοσπείρας τῆς Πομονείου ἔναντι τοῦ χοίρου) ἢ ὅτι ἡ ἐν λόγῳ ἐπιζωοτία χαρακτηρίζεται ἀπὸ τὴν ὕπαρξιν μεγάλου ἀριθμοῦ ὑποκλινικῶν (ἀφανῶν) λοιμώξεων.

Φαίνεται ἐν τούτοις ὅτι τὸ ἀποτέλεσμα τῆς ἐκ τῆς Λεπτοσπείρας λοιμώξεως ὀφείλεται μᾶλλον εἰς παράγοντας σχέσιν ἔχοντας πρὸς τὸν ζωϊκὸν ξενιστὴν καὶ οὐχὶ πρὸς τὸ εἶδος τοῦ παρασιτοῦντος μικροοργανισμοῦ. Ἐν τούτοις ἡ συχνότης ἐμφανίσεως ὡρισμένων συμπτωμάτων ὡς ὁ ἴκτερος καὶ ἡ αἱμοσφαιρινουρία ὑφίσταται πιθανώτατα τὴν ἐπίδρασιν αὐτῆς ταύτης τῆς Λεπτοσπείρας.

Ἐκτὸς τούτου ὅμως αἱ δίοδοι διὰ διαφόρων εἰδῶν ξενιστῶν δύνανται νὰ προκαλέσωσι τὴν αὐξομείωσιν τῆς παθογόνου ἰσχύος τοῦ μικροοργανισμοῦ μεταβάλλουσαι τὸν χαρακτῆρα τῆς ἐπιζωοτίας.

Ἡ νοσηρότης κατὰ τὰς ἐπιζωοτίας Λεπτοσπειρώσεως τῶν Βοοειδῶν ὑπελογίζετο εἰς τὰς Ἡνωμένας Πολιτείας κατὰ τὸ 1952 εἰς 70 %.

Ἐκ τῶν ἀνωτέρω περιστατικῶν 5 - 10 % παρουσίαζον βαρείαν μορφήν, 20 - 40 % ἠπίαν καὶ εἰς τὰ 20 - 30 % ἡ νόσος ἦτο ἀφανής. Οἱ ἀνωτέρω ἀριθμοὶ ἐν τούτοις δὲν ἔχουσιν ἐφαρμογὴν ἐπὶ πάσης ἐπιζωοτίας Λεπτοσπειρώσεως τῶν βοοειδῶν. Σημαντικαὶ διαφοραὶ παρατηροῦνται κατὰ τὰς διαφόρους ἐπιζωοτίας μιᾶς καὶ τῆς αὐτῆς περιοχῆς ἔστω καὶ ἐὰν αὗται ὀφείλονται εἰς τὸ αὐτὸ—ὀρολογικῶς—εἶδος Λεπτοσπείρας.

Παραθέτομεν κατωτέρω δύο παραδείγματα ἐκ τῆς προσωπικῆς ἡμῶν πείρας:

1. Τὸ ἔτος 1949 αἰφνιδία ἐπιζωοτία Λεπτοσπειρώσεως ἐνέσκηψεν ἐπὶ τῶν Βοοειδῶν μιᾶς Κοινότητος κειμένης εἰς τὴν παραλιακὴν πεδιάδα τοῦ Σαρὸν εἰς τὸ Ἰσραήλ. Ὁ ἀριθμὸς τῶν ζώων τῶν παρουσιαζόντων θετικὴν ὀροσυγκόλλησιν ηὔξησε ταχέως: Δύο μῆνας μετὰ τὴν ἔναρξιν τῆς νόσου, ἐκ τῶν 95 ἐνηλίκων ἀγελάδων προερχομένων ἐκ διασταυρώσεως μετὰ τῆς γενεᾶς Frisian αἱ 88, καὶ ἐκ τῶν 22 μόσχων οἱ 14 παρουσίαζον θετικὴν ὀροσυγκόλλησιν. Δώδεκα ἀγελάδες ἐνόσησαν σοβαρῶς ἐκ τῶν ὁποίων αἱ δέκα ἔθανον ἢ ἐσφάγησαν ἐν ἀγωνίᾳ. Τριάκοντα περίπου ἄλλαι ἀγελάδες παρουσίασαν ἐλαφρὰ συμπτώματα τῆς νόσου (μείωσιν τῆς ὀρέξεως καὶ τῆς γαλακτοπαραγωγῆς ἐπί τινας ἡμέρας), ἐνῷ αἱ λοιπαὶ ἦσαν κλινικῶς ὑγιεῖς. Ἡ ἀνωτέρω κλινικὴ εἰκὼν προσομοιάζει, ὡς προείπομεν, πρὸς τὴν ἐν ταῖς Ἡνωμέναις Πολιτείαις παρατηρουμένην τοιαύτην.

2. Σημαντικὴ παραλλαγὴ ἐκ τῆς ἀνωτέρω εἰκόνος παρετηρήθη τὸ

1951 κατὰ μίαν ἐπιζωοτίαν Λεπτοσπειρώσεως προσβαλλοῦσαν ἐντοπίας ἀραβικὰς αἶγας ἐκτρεφομένας κατὰ μῆκος τῶν πρὸς τὴν Ἰορδανίαν συνόρων. Ἡ ἐπιζωοτία αὕτη ὠφείλετο, ὡς ἀπεδείχθη ἐκ τῆς ὀρολογικῆς ἐξετάσεως, εἰς τὸ αὐτὸ εἶδος Λεπτοσπείρας ὡς τὸ ἀπομονωθὲν κατὰ τὴν ἐπιζωοτίαν τῆς περιοχῆς τοῦ Σαρόν. Ἡ ὀροσυγκόλλησις τοῦ αἵματος 54,8 % τῶν αἰγῶν ὡς ἐπίσης 53,4 % τῶν ἀγελάδων ὑπῆρξεν θετική. Ἐνῷ ὅμως ὅλαι αἱ θετικῶς ἀντιδράσασαι αἶγες ἐνόσησαν βαρέως καὶ 106 ἐκ τοῦ ἀριθμοῦντος 240 ἄτομα ποιμνίου ἔθανον, ὅλαι αἱ θετικῶς ἀντιδράσασαι ἀραβικῆς γενεᾶς ἀγελάδες παρέμειναν κλινικῶς ὑγιεῖς.

Ἐκτὸς τῶν μεγάλων τούτων διαφορῶν εἰς τὴν κλινικὴν ἐμφάνισιν τῆς νόσου, δύναταί τις κατὰ τὰς διαφόρους ἐπιζωοτίας Λεπτοσπειρώσεως νὰ συναντήσῃ ποικίλλας κλινικῶς ἐνδιαμέσους μορφάς.

Τὰ συμπτώματα τῆς Λεπτοσπειρώσεως τῶν Βοοειδῶν δὲν εἶναι σαφῶς διαγεγραμμένα. Πρόκειται μᾶλλον περὶ συνδρομῆς συντεθειμένης ἐκ τοῦ συνδυασμοῦ τῶν διαφόρων συμπτωμάτων.

Ἐξ ἄλλου δὲν πρέπει νὰ παροραῦται ὅτι καὶ μὴ εἰδικῆς φύσεως νοσηραὶ ἐκδηλώσεις ὡς π. χ. ἡ ἀνορεξία, ἡ μείωσις τῆς γαλακτοπαραγωγῆς καὶ ἐνδεχομένως ἡ ἔκτρωσις δύνανται νὰ εἶναι αἱ μοναδικαὶ ἀντιδράσεις τοῦ ὀργανισμοῦ αἱ ὀφειλόμεναι εἰς τὴν ἐκ Λεπτοσπειρῶν μόλυνσιν καὶ κατὰ συνέπειαν ἐν ἀπουσίᾳ γνωστοῦ αἰτιολογικοῦ παράγοντος δέον ὅπως ἀντιμετωπίζεται ἡ πιθανότης ὑπάρξεως Λεπτοσπειρώσεως.

Ἡ τυπικὴ συνδρομὴ περιλαμβάνει συνήθως τὰ ἑξῆς συμπτώματα: Ἀνορεξίαν συνοδευομένην ἀπὸ πυρετὸν κατὰ τὰς πρώτας ἡμέρας τῆς νόσου, παροδικὴν κατάπτωσιν καὶ κατήφειαν, μείωσιν τῆς γαλακτοπαραγωγῆς χαρακτηριζομένην ἀπὸ ἔκκρισιν γάλακτος ὑποκιτρίνου ἢ αἱματηροῦ καὶ ἔχοντος ὑφὴν πυκνοτέραν τοῦ συνήθους. Ἐνῷ δὲ δὲν ὑφίσταται μαστῖτις ὁ μαζικὸς ἀδὴν δύναται νὰ παρουσιάζῃ σκλήρυνσιν ἢ χαλάρωσιν.

Ἐκτὸς τῶν ἀνωτέρω συμπτωμάτων παρατηροῦνται ἐπιπροσθέτως ἴκτερος καὶ οὖρα χρώματος ἐρυθροῦ μέχρι ὑπομέλανος μετὰ καταστροφῆς τῶν ἐρυθρῶν αἱμοσφαιρίων («Λοιμώδης αἱμολυτικὴ ἀναιμία καὶ αἱμοσφαιρινουρία»).

Κατὰ τὴν ἐμπύρετον περίοδον ἐπέρχεται λευκοπενία χαρακτηριζομένη ἀπὸ τὴν ταὐτόχρονον ἐλάττωσιν τῶν τε οὐδετεροφίλων καὶ τῶν λεμφοκυττάρων. Ἡ ἔκτρωσις παρατηρεῖται ἀνεξαρτήτως τοῦ σταδίου τῆς ἐγκυμοσύνης συνήθως δὲ 2 - 3 ἑβδομάδας μετὰ τὴν εἰσβολὴν τῆς νόσου. Ἡ οὐραιμικὴ συνδρομὴ ἡ ὁποία παρετηρήθη εἰς τὸ Ἰσραὴλ εἰς τὰ σοβαρὰ περιστατικὰ δὲν ἀναφέρεται ὑπὸ τῶν Βορειοαμερικανῶν μελετητῶν τῆς νόσου. Ἡ γενικὴ καταβολὴ τῶν δυνάμεων δύναται νὰ εἶναι πρώϊμος καὶ νὰ ἀγάγῃ τὸ ζῶον εἰς πλήρη ἀπίσχνανσιν.

Εἰς πλείστας περιπτώσεις, μετὰ περίοδον βελτιώσεως ἐπέρχεται ὑποτροπὴ ἡ ὁποία συνήθως ἄγει εἰς τὸ μοιραῖον.

Ἡ θνητότης κατὰ τὰς διαφόρους ἐπιζωοτίας ποικίλλει ἀπὸ μηδὲν μέχρι 10 % καὶ πλέον, τῶν νοσούντων ζώων.

Αἱ σπουδαιότεραι καὶ σταθερώτεραι ἱστολογικαὶ ἀλλοιώσεις παρατηροῦνται εἰς τοὺς νεφρούς: Θολερὰ ἐξοίδησις ἢ καὶ νέκρωσις τῶν ἐπιθηλιακῶν κυττάρων τῶν ἐσπειραμένων σωληναρίων, λεμφοκυτταρικαὶ διηθήσεις καὶ αἱμορραγίαι τοῦ διαμέσου συνδετικοῦ ἱστοῦ.

Τὰ νεφρικὰ σωμάτια γενικῶς δὲν παρουσιάζουσιν ἀλλοιώσεις. Αἱ Λεπτόσπειραι, ἐὰν ὑπάρχουσι, παρατηροῦνται ἐντὸς τοῦ αὐλοῦ τῶν νεφρικῶν σωληναρίων. Εἰς τὸ ἧπαρ, πλὴν τῆς διηθήσεως τοῦ περὶ τὴν πυλαίαν φλέβα παρεγχύματος διὰ στρογγύλων κυττάρων, παρατηρεῖται ἐπίσης λιπώδης ἐκφύλισις, ρῆξις καὶ νέκρωσις τῶν ἡπατικῶν κυττάρων.

Ἡ παρουσία Λεπτοσπειρῶν ἐν τῷ ἥπατι καὶ τοῖς νεφροῖς δὲν εἶναι συνάρτησις τῆς κυτταρικῆς διηθήσεως. Εἶναι μάλιστα ἀξιοσημείωτον ὅτι οὐδεμία σχέσις ὑπάρχει μεταξὺ τῆς σοβαρότητος τῶν κλινικῶν ἐκδηλώσεων καὶ τῆς βαρύτητος τῶν ἀνατομοπαθολογικῶν βλαβῶν.

Ὅσον ἀφορᾶ εἰς τὸν διαχωρισμὸν τῶν διαφόρων εἰδῶν Λεπτοσπειρῶν εἰς τοὺς ἀποκληθέντας ὀρολογικοὺς τύπους, αἱ μόναι ἄξιαι ἐμπιστοσύνης μέθοδοι αἱ δίδουσαι ἐπαρκῶς σταθερὰ ἀποτελέσματα εἶναι: ἡ μέθοδος τῆς διασταυρουμένης ὀροσυγκολλήσεως καὶ λύσεως καὶ ἡ μέθοδος τῆς ἀπορροφήσεως τῶν συγκολλητινῶν.

Λεπτόσπειραι ἀνήκουσαι εἰς διαφόρους ὀρολογικοὺς τύπους ἔχουσι τὴν ἱκανότητα νὰ εἰσδύωσι ἐντὸς τῶν ἱστῶν τῶν βοοειδῶν καὶ νὰ προκαλῶσι τὴν γένεσιν ἀντισωμάτων καὶ τὴν δημιουργίαν ἀνατομοπαθολογικῶν ἀλλοιώσεων.

Τὸ πρῶτον εἶδος Λεπτοσπείρας ὅπερ ἀπεμονώθη ἐκ τῶν βοοειδῶν κατὰ μίαν ἐπιζωοτίαν εἰς τὴν Νότιον Ρωσσίαν (1935) ἐκλήθη ἀρχικῶς «Λεπτόσπειρα τῆς ἰκτεροαιμοσφαιρινουρίας τοῦ βοὸς» βραδύτερον ὅμως ἀπεδείχθη ὅτι αὕτη ἦτο ταὐτόσημος πρὸς τὴν «Λεπτόσπειραν τὴν Γριπποτυφώδη» τὴν προκαλοῦσαν τὴν «Νόσον τῆς Ἰλύος» εἰς τὸν ἄνθρωπον. Ὅμοια εἴδη Λεπτοσπειρῶν ἀπεμονώθησαν εἰς τὸ Ἰσραὴλ ἐκ βοοειδῶν, ὡς καὶ ἐξ ἀνθρώπων οἱ ὁποῖοι ἤρχοντο εἰς ἐπαφὴν μὲ τὰ ζῶα ταῦτα.

Τὰ εἴδη ταῦτα ἐπωνομάσθησαν «Λεπτόσπειρα ἡ Βόειος» ἐπειδὴ ὅμως δὲν διαφέρουσιν ἀντιγονικῶς ἀπὸ τὸ εἶδος «Λεπτόσπειρα ἡ Γριπποτυφώδης» τὸ ὄνομα «Λ. ἡ Βόειος» δέον ὅπως ἐγκαταλειφθῇ.

Ἀφ' ἑτέρου ἐν Ἑλβετίᾳ κατὰ τὸ 1947 καὶ ἐκ τοῦ αἵματος δύο ἀγελάδων πασχουσῶν ἐκ Γαγγραινώδους Κορύζης ἀπεμονώθη ὁ αὐτὸς ὀρολογικὸς τύπος Λεπτοσπείρας. Ἐπίσης σποραδικαὶ λοιμώξεις ὀφειλόμεναι εἰς «Λ. τὴν ἰκτεροαιμορραγικὴν» διεπιστώθησαν ἐπὶ μόσχων ἐν Ἀγγλίᾳ τὸ 1950. Τὸ 1942 ἡ «L. Hyos» (Mitis Johnson) ἀπεμονώθη ἐκ σταβλιτῶν οἱ ὁποῖοι ἐνοσήλευον βοοειδῆ πάσχοντα ἐξ αἱμοσφαιρινουρίας καὶ οἱ

ὁποῖοι παρουσίαζον ὑψηλὸν τίτλον συγκολλήσεως τοῦ ὀρολογικοῦ τούτου τύπου. Τὸ 1949 βαρεῖα νόσος τῶν μόσχων μελετηθεῖσα εἰς Κουηνσλάνδην ὠφείλετο εἰς «Λ. τὴν Πομόνειον». Μεταγενέστεραι ἐπιζωοτίαι ἐσημειώθησαν εἰς Βικτωρίαν, Δυτικὴν Αὐστραλίαν καὶ Νέαν Ζηλανδίαν. Σημαντικὸς ἐπίσης ἀριθμὸς ἐπιζωοτιῶν ὀφειλομένων εἰς τὴν «Λ. τὴν Πομόνειον» παρετηρήθη εἰς τὰς Ἡνωμ. Πολιτείας τῆς Β. Ἀμερικῆς (1946) καὶ τὴν Ἀργεντινήν.

Ἐπ' ἐσχάτων διεπιστώθησαν εἰς τρεῖς περιοχὰς τοῦ Ἰσραὴλ λοιμώξεις τῶν βοοειδῶν ὀφειλόμεναι εἰς τὴν «Λ. τὴν Κυνοκτόνον». Τὰ περιστατικὰ ταῦτα, μὴ δημοσιευθέντα εἰσέτι, εἶναι τὰ πρῶτα τὰ ἀναφερόμενα εἰς προσβολὴν ἄλλων ζώων — πλὴν τῶν κυνῶν — ὑπὸ τῆς ἀνωτέρω Λεπτοσπείρας.

Ἐκτὸς τῶν ἀνωτέρω χωρῶν εἰς τὰς ὁποίας ἡ αἰτιολογικὴ ἀπόδοσις τῶν Λεπτοσπειρώσεων καθωρίσθη διὰ τῆς ἀπομονώσεως Λεπτοσπειρῶν ἐκ τῶν νοσούντων ζώων, διεπιστώθη ἐπίσης εἰς διαφόρους ἄλλας χώρας ἡ ὕπαρξις κρυψιλοιμώξεων διὰ τῆς ἐξακριβώσεως ὑψηλῶν τίτλων ὀροσυγκολλήσεως εἰς αἷμα φαινομενικῶς ὑγιῶν ἀγελάδων.

Ἐν Δανίᾳ π. χ. ὑγιᾶ βοοειδῆ παρουσίασαν συγκολλητίνας ἐναντίον τῆς «L. Sejroe» καὶ τῆς «L. Saxkoebing». Ἐν Γερμανίᾳ ἐναντίον τῆς «Λ. τῆς ἰκτεροαιμορραγικῆς», «Λ. τῆς Γριπποτυφώδους», «L. Sejroe», «L. Hyos» καὶ «L. Australis». Ἐν Ἑλβετίᾳ ἐναντίον τῆς «L. Sejroe», «Λ. τῆς Πομονείου», «L. Hyos» καὶ τῆς «Λ. τῆς ἰκτεροαιμορραγικῆς». Ἐν Ἰταλίᾳ ἐναντίον τῆς «Λ. τῆς Πομονείου» καὶ τῆς «Λ. τῆς ἰκτεροαιμορραγικῆς». Ἐν Ἰαπωνίᾳ ἐναντίον τῆς «L. Australis», «L. Autumnalis» καὶ τῆς «L. Hebdomadis». Μικρὸς ἀριθμὸς θετικῶν ἀντιδράσεων διεπιστώθη ἐπίσης ἐν Ὁλλανδίᾳ ἐναντίον τῆς «Λ. τῆς ἰκτεροαιμορραγικῆς» καὶ τῆς «Λ. τῆς Γριπποτυφώδους». Ἀναφέρομεν ἐπίσης ὅτι ὑψηλὸν ποσοστὸν βοοειδῶν εἰσαχθέντων πρὸς σφαγὴν εἰς τὸ Κράτος τοῦ Ἰσραὴλ ἐκ τῶν ὁμόρων ἀραβικῶν χωρῶν καὶ τῆς Τουρκίας παρουσίασαν θετικὴν ἀντίδρασιν ὡς πρὸς τὴν «Λ. τὴν Γριπποτυφώδη».

Ἐκ τῶν ἀνωτέρω συνάγεται ὅτι τὰ εἴδη τῶν Λεπτοσπειρῶν εἶναι εὐρέως διαδεδομένα εἰς τὰ βοοειδῆ τῶν διαφόρων χωρῶν.

Ἐξ ἄλλου βαρεῖαι ἐπιζωοτίαι Λεπτοσπειρώσεως παρετηρήθησαν εἰς Ρωσσίαν, Β. Ἀμερικήν, Αὐστραλίαν, Νέαν Ζηλανδίαν καὶ Ἰσραήλ.

Λόγῳ τῆς ἀσταθείας τῶν εἰς Λεπτοσπείρας ὀφειλομένων λοιμώξεων τῶν βοοειδῶν, ἡ παρουσία φαινομενικῶς ὑγιῶν ἀλλὰ θετικῶς ἀντιδρώντων ζώων εἰς περιοχὰς εἰς τὰς ὁποίας ἡ Λεπτοσπείρωσις δὲν ἔχει εἰσέτι διαγνωσθεῖ ἐπὶ βοοειδῶν, δέον ὅπως θεωρεῖται ὡς λανθάνων κίνδυνος, καθ' ὅσον αὕτη δύναται ν' ἀποτελέση τὴν ἀφετηρίαν σοβαρῶν ἐπιζωοτιῶν.

Συνήθως ὁ ὀρολογικὸς τύπος ὑποδεικνύει τὴν ἐπιζωοτολογικὴν σχέ-

σιν μὲ καλῶς καθωρισμένον φορέα ἐξ οὗ προέρχεται ἡ μόλυνσις τῶν βοοειδῶν.

Εἰς τὰς χώρας ἐκείνας εἰς τὰς ὁποίας ἡ Λεπτοσπείρωσις ὀφείλεται εἰς τὴν «Λ. τὴν Πομόνειον» ἢ τὴν «L. Hyos» οἱ χοῖροι εἶναι πιθανώτατα οἱ φορεῖς τῆς νόσου. Μετὰ τὴν μετάδοσιν τῆς νόσου ἐκ τοῦ φυσικοῦ φορέως εἰς τὰ βοοειδῆ ἡ περαιτέρω μετάδοσις εἰς τὰς ἀγελάδας δύναται νὰ λάβῃ χώραν διὰ τῶν οὔρων τῶν φερόντων Λεπτοσπείρας εἰς τοὺς νεφροὺς τῶν ζώων εἴτε ταῦτα εἶναι ἀσθενῆ, ἀναρρωνύοντα ἢ καὶ φαινομενικῶς μὲν ὑγιᾶ ἀλλ' ἀπεκκρίνοντα Λεπτοσπείρας.

Εἰς τὸ Κράτος τοῦ Ἰσραὴλ εἶδος τι ἀρουραίου ὁ Microtus guentheri θεωρεῖται ὡς κοινὸς φορεὺς τῆς «Λ. τῆς Γριπποτυφώδους» τόσον διὰ τὸν ἄνθρωπον ὅσον καὶ διὰ τὰ βοοειδῆ, ἐνῷ ἄλλα ἄγρια τρωκτικὰ θεωροῦνται ὀλιγώτερον ὑπεύθυνα διὰ τὴν μετάδοσιν αὐτῆς.

Ἀντιθέτως πρὸς τὸν ἀνωτέρω ἀρουραῖον ὅστις ἐπιζεῖ τῆς λοιμώξεως καὶ ἀποβαίνει φορεύς, ἄλλα ἄγρια τρωκτικὰ (Gerbils) θνήσκουν ἐξ ὀξείας Λεπτοσπειρώσεως εὐθὺς ὡς νοσήσουν ἐκ ταύτης.

Θεωρεῖται ἐν Ἰσραὴλ ὅτι ἡ Λεπτόσπειρα ἡ Κυνοκτόνος μεταδίδεται εἰς τὰ βοοειδῆ πιθανῶς ὑπὸ τῶν θωῶν.

Τὰ σοβαρώτερα μέτρα καταπολεμήσεως τῆς Λεπτοσπειρώσεως τῶν βοοειδῶν ἔχουσιν ὡς ἀντικειμενικὸν σκοπὸν τὴν καταστροφὴν τῶν ζώων ἐκείνων τὰ ὁποῖα ἀπεκκρίνουν Λεπτοσπείρας διὰ τῶν οὔρων των. Κατὰ συνέπειαν ἐπιβάλλεται ἡ ἐξόντωσις τῶν ἀγρίων τρωκτικῶν καὶ τῶν θωῶν ὁσάκις ὁ καθορισμὸς τοῦ ὀρολογικοῦ τύπου τῆς Λεπτοσπείρας ὑποδεικνύει τὰ ζῶα ταῦτα ὡς πιθανὴν πηγὴν τῆς μολύνσεως. Ὁμοίως τὰ νοσοῦντα ζῶα πρέπει νὰ ἀπομονοῦνται καὶ νὰ μὴ ἔρχωνται εἰς οὐδεμίαν ἐπαφὴν μὲ τὰ ὑγιᾶ τοιαῦτα ἐπὶ πολλοὺς μῆνας μετὰ τὴν ἀνάρρωσίν των.

Εἰς τὴν Σοβιετικὴν Ρωσσίαν καὶ τὰς Ἡνωμένας Πολιτείας ἐφαρμόζεται προληπτικὸς ἐμβολιασμὸς κατὰ τῆς νόσου ταύτης.

Ὅσον ἀφορᾷ εἰς τὴν θεραπείαν δὲν ὑπάρχουσι μέχρι σήμερον ἐπαρκῆ δεδομένα ἐπιτρέποντα τὴν ἐξαγωγὴν βασίμων συμπερασμάτων ἐπὶ τῆς σκοπιμότητος τῆς χρήσεως βιοθεραπευτικῶν. Ἐν τοσούτῳ ἡ Στρεπτομυκίνη, ἡ Χρυσομυκίνη καὶ ἡ Γαιωμυκίνη φαίνονται ὅτι ἔχουν εὐνοϊκὴν ἐπίδρασιν ἐπὶ τῆς νόσου κατὰ τὸ ὀξὺ στάδιον αὐτῆς, βραχύνοντα τὴν διαδρομήν της καὶ ἐπιταχύνοντα τὴν ἐπάνοδον εἰς τὴν φυσιολογικὴν γαλακτοπαραγωγήν.

Κ.Β.Τ.

BOVINE LEPTOSPIROSIS

by

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In recent years a new chapter has been added to Veterinary pathology eversince leptospirosis was proven to occur much more frequently among domestic animals than had been known hitherto.

Leptospira was found to be the causative agent of Weil's disease, in 1915. It took more than ten years before they were revealed in other animals than rodents. After infections by different types of leptospira were observed in dogs, also cats, pigs, horses and silver-foxes were found to be naturally infected.

Leptospirosis in cattle was for the first time described in Russian literature. Soon it became evident that frequently the number of cases of clinical sickness cannot serve as a criterion for the extent of infection in the herd. Several cows show significant agglutinin - lysis titres against the causative leptospiratype, whereas the number of cases of actual disease is much more limited. It even often happens that positive serumreactions are encountered in animals while no clinical cases of leptospirosis had ever been recognised by the local veterinarian.

The explanation for these hidden infections may be a low natural pathogenicity of the microbe for the host - animal (e.g. L. pomona in pigs), or that the prevailing enzootic is characterised by a large number of subclinical infections.

It seems that the effect of leptospira - infection in cattle depends more on conditions connected with the host - animal than on the type of the parasitic organism. Nevertheless, the frequency in which particular symptoms. such as jaundice and red - water, appear, may be influenced by the leptospira - type itself. Besides this, different degrees of virulence, probably due to passage through certain host - species, may add to the character of an outbreak.

The average morbidity - rate of enzootic bovine leptospirosis in the U.S.A. (1951) was supposed to be about 70 percent. In 5 to 10 percent of the cases the illness took a severe course; 20 to 40 percent developed a mild form and in 20 to 30 percent the disease was inap-

parent. These figures, however, don't apply to every outbreak of leptospirosis in cattle. Considerable differences characterize various enzootics even in the same region and caused by one and the same serotype of leptospira.

Here follow two examples from our own experience.

1) In 1949 a sudden outbreak of leptospirosis occurred among the cattle of a communal settlement in the coastal plain of Sharon in Israel. The number of animals showing specific bloodagglutinins increased rapidly. Two months after onset of the disease 88 out of 95 adult Frisian - cross - bred milking cows, and 14 out of 22 calves reacted with leptospira. Twelve cows were seriously sick, and ten of these died or were slaughtered in extremis. Approximately 30 other cows showed slight symptoms of the disease (lack of appetite during a few days, decreased milkyield). The rest of the cows remained clinically healthy.

This picture is in close agreement with the American figures, mentioned above.

2) A marked deviation from the above ratio was noticed in an outbreak of leptospirosis among local arab goats, in 1951, occurring along the border of Jordan State, and caused by the same leptospiratype as was isolated from cattle in the forementioned enzootic in the Sharon district. In the bloodsera of 54,8 percent of the goats as well as in those of 53,4 percent of the cows positive agglutination reactions developed. However, whereas nearly all reacting goats suffered very badly from the disease, and 106 of a flock of 240 succumbed, all reacting arab cows remained clinically healthy.

Besides such extreme differences in clinical appearance one may encounter enzootics of bovine leptospirosis showing various intermediate pathological pictures.

The symptoms of leptospirosis in cattle are not clearcut. None of them are pathognomonic in themselves. Combination of symptoms, however, may constitute a suggestive syndrome.

On the other hand it must be kept in mind that unspecific deviations from the normal, such as lack of appetite, temporary alterations in milkproduction, and occasional abortions, may be the only bodyreaction to the infection, and therefore, in the absence of known etiological factors, the probability of leptospirosis should be considered in such cases.

The complete syndrome may involve the following symptoms:

Anorexia and rise of temperature during the first days of illness.

Transient state of depression and dullnes. Decreased production of milk of a thickened, bloody or yellowish appearance. Though no real mastitis exists, the udder may be flabby or slightly hardened. In addition to the above there may appear: jaundice, red to nearly black urine, blood destruction («infectious hemolytic anemia and hemoglobinuria»), and, during the febrile period, leucopenia of both neutrophils and lymphocytes. Abortion may occur independent of the stage of pregnancy, usually in the second or third week after infection. A uremic syndrom is common in severe cases in Israel, but has not been reported in North America. General weakness may develop early, and that up to a state of utmost emaciation.

In several cases, after a period of temporary improvement, relapses occur which usually take a fatal course. The mortality of different enzootics is extremely divergent, and varies from zero to ten or more percent of the affected animals.

The most important and constant histological changes are present in the kidneys: swelling, degeneration and necrosis of the epithelial cells of the tubuli contorti, interstitial lymphocytic infiltrations and hemorrhages. The glomeruli are generally unaffected. Leptospira, if present, are found in the lumina of the renal tubules. In the liver round-cell infiltrations of the periportal tissue, fatty degeneration, dissociation and necrosis of hepatic cells are found.

The presence of leptospira in liver and kidneys doesnot correlate with cellular infiltrations. It is noteworthy that often no relationship exists between the intensity of histologic changes and the seriousness of clinical manifestations.

The only reliable techniques known, which give sufficiently constant results in the differentiation of leptospirastrains into so-called serotypes, are the cross agglutination-lysis test and the agglutinin absorption test. Leptospira of various serotypes possess the power to penetrate into the tissues of cattle and give rise to antibody-production and pathologic changes.

The first leptospirastrain isolated from cattle during an outbreak in Southern Russia (1935), was originally called L. icterohemoglobinuriae bovis or vitulorum. Later it proved to be identical with the mudfeverstrain of man, L. grippotyphosa.

Similar strains were isolated in Israel (1945) from cattle and persons who had been in close contact with these animals. They are known by the name L. bovis. However, since they do not differ

antigenically from the grippotyphosa type, the name L. bovis should be abandoned.

From the blood of two cows suffering from gangrenous coryza in Switzerland the same serotype was isolated (1947). Occasional L. icterohaemorrhagiae infections in calves were observed in England (1950).

In 1942 L. hyos (syn. mitis Johnson) was isolated from stablemen who attended cattle suffering from «redwater» and showed high agglutination titres against this serotype.

A severe disease of calves in Queensland (1949) was caused by L. pomona. Consecutive outbreaks occurred in Victoria, West-Australia and New-Zealand.

Several enzootics of pomona-infections have been observed in cattle in the U.S.A. (1946) and the Argentina (1949).

Infections of cattle by L. canicola, as yet unpublished, have recently been observed in three settlements in Israel. These are the first natural canicola-infections detected in animals other than canines.

In addition to the above mentioned countries, where the etiological importance of leptospira has been established by their isolation from sick cattle, the presence of occult infections has been demonstrated in several other territories by the dctection of significant agglutination titres in the blood of apparently healthy cows.

Cattle, not suspected of disease, in Denmark showed agglutinins against L. sejroe and L. saxkoebing, in Germany against L. icterohaemorrhagiae, L. grippotyphosa, L. sejroe, L. hyos and L. australis in Switzerland against L. sejroe, L. pomona, L. hyos and L. icterohaemorrhagiae, in Italy against L. pomona and L. icterohaemorrhagiae, in Japan against L. australis A, L. autumnalis and L. hebdomadis. A very small number of positive reactions were found in cattle in the Netherlands against L. icterohaemorrhagiae and L. grippotyphosa. A rather high proportion of cattle imported for slaughter into Israel, from the neighbouring Arab countries and Turkey reacted to L. grippotyphosa.

From the foregoing facts it may be concluded that different leptospiratypes are widely distributed in bovines in various parts of the world.

Severe outbreaks of disease were observed in Russia, Northern America, Australia, New-Zealand and Israel.

In view of the precarious character of leptospira-infections in cattle, the presence of apparently healthy animals reacting to leptospira, in areas where leptospirosis is yet an unknown cattle-disease, must be considered as a latent danger, since they may become the starting point of serious outbreaks.

Usually the serotype indicates the epiootological retationship with a well defined natural reservoir, from which the infection of cattle has derived.

In countries where bovine leptospirosis is brought about by L. pomona or L. hyos, pigs are suspected of being the source of infection. After the infection has been transmitted from the natural reservoir to cattle, further spread among the cows may take place by means of the urine of renal leptospira-carriers which may exist among the sick, convalescent, recovered or apparently healthy animals.

In Israel the vole (Microtus guentheri) is considered to be the common source of L. grippotyphosa - infection of man as well as of cattle. Other field - rodents are much less suspected in this connection. Unlike Microtus which survives infection and becomes a carrier, other wild rodents (gerbils) as a rule die from acute leptospirosis soon after contracting the disease. In Israel infections of cattle by L canicola presumably originate from jackals.

The most important measures of control of bovine leptospirosis aim at the elimination of animals which shed leptospira in their urine.

Eradication of wild rodents and jackals should be attempted wherever the leptospiratype points at these animals as a possible natural source of infection.

Infected cattle should be kept separated trom the healthy stock during several months after recovery.

In the U.S.S.R. and the U.S.A. preventive vaccinaeion has been put into practice.

Up to now, there has not accumulated sufficient experience to permit us any definite conclusions with regard to the practicality of treating sick animals with antibiotics, however, streptomycin, aureomycin anp terramycin seem to have some beneficial effect in the acute stage of the disease, shortening its duration and speeding up return to normal milkproduction.

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ΠΡΟΛΗΠΤΙΚΟΣ ΑΝΤΙΛΥΣΣΙΚΟΣ ΕΜΒΟΛΙΑΣΜΟΣ ΤΩΝ ΚΥΝΩΝ ΕΝ ΕΛΛΑΔΙ ΔΙ' ΕΜΒΟΛΙΟΥ ΠΑΡΑΧΘΕΝΤΟΣ ΕΠΙ ΕΜΒΡΥΟΦΟΡΩΝ ΩΩΝ ΟΡΝΙΘΟΣ (AVIANISÉ) *

Ὑπὸ

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Χάρις εἰς τὰ αὐστηρὰ ὑγειονομικὰ μέτρα τὰ ληφθέντα πρὸ τοῦ τελευταίου Παγκοσμίου πολέμου, τὰ κρούσματα λύσσης εἶχον ἐλαττωθεῖ εἰς τοιοῦτον βαθμὸν ὥστε ἠλπίζετο ὅτι ἡ νόσος θὰ ἐξέλιπεν ἐντὸς τῶν ὀλίγων προσεχῶν ἐτῶν.

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* Ἔκθεσις ὑποβληθεῖσα εἰς τὴν ἐπὶ τῆς λύσσης Ἐπιτροπὴν τῆς Παγκοσμίου Ὀργανώσεως Ὑγείας (W.H.O.).