

[54] THERAPEUTIC ADHESIVE PATCH

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[22] Filed: Oct. 31, 1969

[21] Appl. No.: 872,862

[52] U.S. Cl. .... 128/268

[51] Int. Cl. .... A61f 7/02

[58] Field of Search..... 128/260, 268, 172, 208, 222, 128/213; 424/423

[56] References Cited

UNITED STATES PATENTS

3,598,122	8/1971	Zaffaroni.....	128/268
3,598,123	8/1971	Zaffaroni.....	128/268
3,536,809	10/1970	Applezweig .....	424/28
3,551,554	12/1970	Herschler .....	424/7
3,551,556	12/1970	Kavel Kliment.....	424/21
3,249,109	5/1966	Maeth et al.....	128/268
3,444,858	5/1969	Russell .....	128/260
3,464,413	9/1969	Goldfarb et al.....	128/268

Primary Examiner—Robert W. Michell  
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[57] ABSTRACT

Therapeutic adhesive patch for stimulation of uterine contractions by application to the oral mucosa is comprised of a backing member, an amount of an oxytocic drug sufficient to release a therapeutically effective amount of the drug to the oral mucosa, and a pressure-sensitive adhesive coating. The oxytocic drug can be dispersed through or coated on the pressure-sensitive adhesive; can be microencapsulated with a material permeable to passage of the drug and the microcapsules distributed throughout the pressure-sensitive adhesive; or can be incorporated in a reservoir layer permeable to passage of the drug and mounted on or laminated to the backing member and bearing a coating of the pressure-sensitive adhesive. The pressure-sensitive adhesive coating can cover the full-face surface of the adhesive patch or a part thereof, such as the perimeter of the face surface of the patch.

12 Claims, 4 Drawing Figures

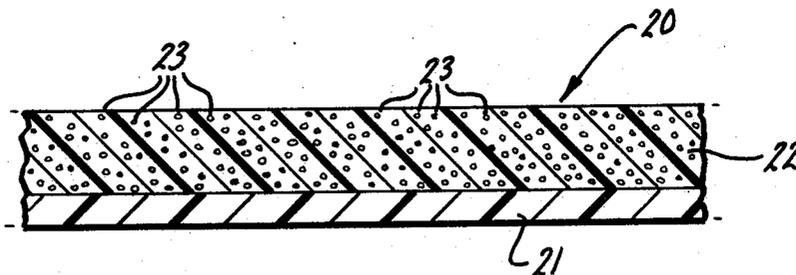


Fig. 1

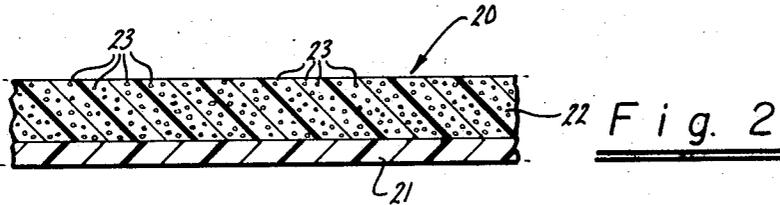
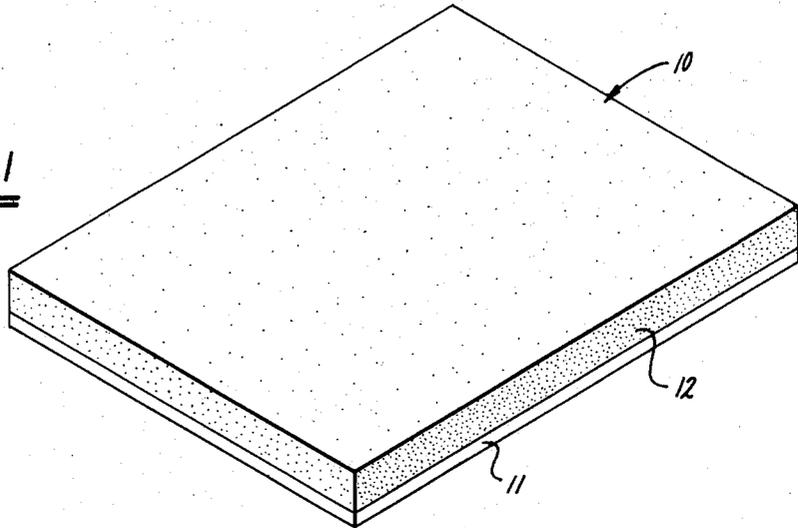


Fig. 2

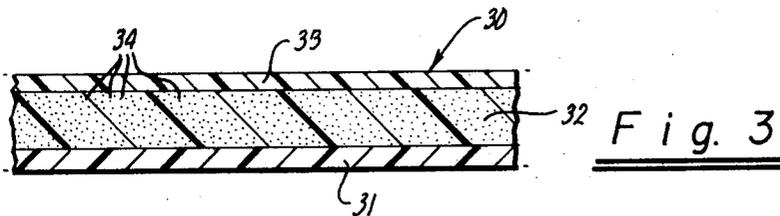


Fig. 3

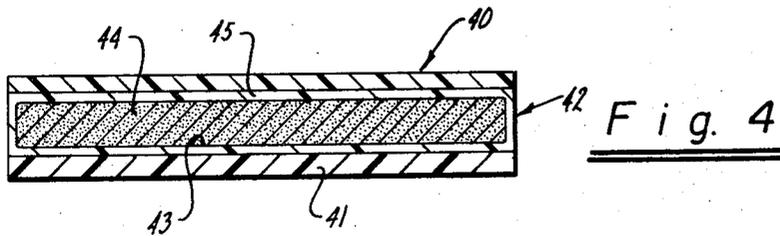


Fig. 4

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## THERAPEUTIC ADHESIVE PATCH

## CROSS REFERENCE TO RELATED PATENTS

This patent is related to U.S. Pat. Nos. 3,598,122 and 3,598,123, granted Aug. 10, 1971 to Alejandro Zafaroni.

## BACKGROUND OF THE INVENTION

This invention relates to a therapeutic adhesive patch and more especially, to a therapeutic adhesive patch for administering an oxytocic drug through the oral mucosa to stimulate uterine contractions.

Oxytocin, desamino-oxytocin, and other oxytocic drugs are widely used to stimulate uterine contractions. In general, these drugs are administered in three types of situations: before the onset of labor to assess the preparedness of labor; to induce labor; and to continue labor in patients with primary or secondary uterine inertia.

Administration of oxytocin by intravenous drip has been found to give the best control over the rate of drug administration. However, sometimes large toxic doses are inadvertently administered by this route. Due to the difficulties of intravenous drip and the danger that the patient may interfere with the drip rate, oxytocin and desamino-oxytocin often are administered through the oral mucosa from buccal tablets. Although most convenient, this route of drug administration presents many heretofore unsolved problems.

In oxytocin administration, it is vital that the dosage of drug administered to the patient be precisely controlled during the full-time course of therapy. Overdosing with oxytocin can cause severe toxic reactions, including uterine rupture. Good control over the rate of administration from buccal tablets can not be obtained due to inability to control the extent to which the patient will maintain the tablet in contact with the mucosa and to control or predict the quantity of drug that will dissolve in saliva and be carried to the gastrointestinal tract.

Another significant problem with buccal tablets is the extremely long lag-time or latent period between placement of the tablet and activity in the uterus. This latent period can be on the order of 30 to 40 minutes or more. See Obolensky et al., J. Obstet. Gynaec. Brit. Cwlth., 76, 245-251 (March 1969). It is likely that this delayed activity is due to the slow dissolution of the tablet and the slow passage of oxytocin through the oral mucosa. This long latent period makes buccal administration of oxytocin impractical for use in the second stage of labor and is a severe limitation on the use of this mode of administration.

In addition to the conventional buccal lozenges or tablets, it has been suggested to administer oxytocin from buccal tablets designed to stay in close proximity to the oral mucosa. However, such tablets have been formed of vehicles soluble in saliva so that substantial but unpredictable amounts of the drug passed to the gastrointestinal tract where it would be absorbed. See U.S. Pat. Nos. 3,429,308 and 3,444,858.

Thus, the problem of developing a dosage form for administering precisely controlled amounts of rapidly acting oxytocic drugs through the oral mucosa remains.

## SUMMARY OF THE INVENTION

Accordingly, one object of this invention is to provide a dosage unit for the administration of oxytocic drugs through the oral mucosa without the disadvantages inherent in previously proposed forms.

Another object of this invention is to provide a dosage unit for administering precisely controlled amounts of oxytocic drugs through the oral mucosa by maintaining the drug in close contact with the oral mucosa but out of contact with salivary excretions.

Still a further object of this invention is to provide a dosage unit for administering oxytocic drugs through the oral mucosa in a manner so that the drug rapidly acts on the uterus.

In accomplishing these objects, one feature of this invention resides in a therapeutic adhesive patch for application to the oral mucosa to stimulate uterine contractions. The patch has a backing member and a surface having a pressure-sensitive adhesive coating, the patch containing an amount of an oxytocic drug absorbable through the oral mucosa sufficient to release a therapeutically effective amount of the drug to the oral mucosa.

Another feature of this invention resides in a therapeutic adhesive patch as described above wherein the oxytocic drug is distributed throughout the pressure-sensitive adhesive coating.

Still another feature of this invention resides in a therapeutic adhesive patch as described above wherein the oxytocic drug is encapsulated with a material permeable to passage of the drug and the microcapsules are distributed throughout the pressure-sensitive adhesive.

A further feature of this invention resides in a therapeutic patch as described above wherein the backing member has on one surface thereof a reservoir containing the oxytocic drug and permeable to passage of the drug, the reservoir bearing on its surface remote from the backing member a coating of the pressure-sensitive adhesive.

Still a further feature of this invention resides in a method for stimulating uterine contractions by applying to the oral mucosa an adhesive patch releasing a therapeutically effective amount of an oxytocic drug absorbable through the oral mucosa.

Other objects, features and advantages of the invention will become more apparent from the following description when taken in conjunction with the accompanying drawings.

## BRIEF DESCRIPTION OF THE DRAWINGS

In the drawings:

FIG. 1 is a perspective view of the therapeutic adhesive patch of the invention having the oxytocic drug distributed throughout the pressure-sensitive adhesive coating;

FIG. 2 is a cross-sectional view of a modified adhesive patch of the invention wherein the oxytocic drug is micro-encapsulated with a material permeable to passage of the drug and the microcapsules are distributed throughout the pressure-sensitive adhesive coating;

FIG. 3 is a cross-sectional view of another embodiment of the invention wherein the oxytocic drug is dis-

tributed throughout a matrix laminated to the backing member and bearing a coating of the pressure-sensitive adhesive; and

FIG. 4 is a cross-sectional view of still another embodiment of the invention wherein the reservoir laminated to the backing member is a hollow container permeable to passage of the oxytocic drug and having the drug within an interior chamber thereof.

#### DETAILED DESCRIPTION OF THE INVENTION

In accordance with this invention, there is provided a therapeutic adhesive patch containing an oxytocic drug absorbable through the oral mucosa.

As illustrated in FIG. 1, the adhesive patch 10 of the invention has a backing member 11 bearing a pressure-sensitive adhesive coating 12. Dispersed throughout pressure-sensitive adhesive coating 12 is an oxytocic drug absorbable through the oral mucosa. Oxytocic drugs suitable for use in the adhesive patch of the invention include oxytocin, desamino-oxytocin and others. Oxytocic drugs which do not pass through the oral mucosa can be used in the form of simple pharmacologically acceptable derivatives such as ethers, esters, amides, etc., having the desired absorption property. Of course, such derivatives should be such as to easily convert to the active drugs within the body through the action of body enzyme assisted transformations, pH, etc. In addition to the drug compounds themselves, their pharmaceutically acceptable salts can be used. Exemplary salts include, without limitation, the hydrochloride, hydrobromide, hydroiodide, sulphate, sulfamate, phosphate, maleate, acetate, citrate, oxalate, succinate, benzoate, tartrate, fumarate, malate, mandelate, ascorbate, etc.

The amount of oxytocic drug incorporated in the adhesive patch to obtain the desired uterine contractions will vary depending on the particular drug used, its rate of release from the patch, the length of time the patch is to remain in place, and the effect to be achieved. Since these patches are to be used for but a particular period of time, there is no critical upper limit on the amount of oxytocic drug incorporated. For when the patch is removed and disposed of, it makes little difference whether any drug remains in it. The lower limit will depend on the activity of the oxytocic drug and its capability of being released from the patch. Thus, it is not practical to define a range for the therapeutically effective amount of oxytocic drug incorporated in or released from these adhesive patches. However, with an adhesive patch containing oxytocin, typically from 20 to 200 international units of oxytocin are incorporated in the patch and the patch is designed to release the drug at a rate of from 10 to 100 international units per hour. With adhesive patches containing desamino-oxytocin, from 10 to 100 international units of the drug are incorporated in the patch and the patch is designed to release the drug at a rate of between 5 and 50 international units per hour. For adhesive patches containing other oxytocic drugs, the drug is incorporated in and released from the patch in an amount equivalent in activity to these ranges.

Any of the well-known orally acceptable pressure-sensitive adhesives can be used in practicing this invention. Exemplary adhesives include acrylic or methacrylic resins such as polymers of esters of acrylic

or methacrylic acid with alcohols such as n-butanol, n-pentanol, isopentanol, 2-methyl butanol, 1-methyl butanol, 1-methyl pentanol, 2-methyl pentanol, 3-methyl pentanol, 2-ethyl butanol, isooctanol, n-decanol, or n-dodecanol, alone or copolymerized with ethylenically unsaturated monomers such as acrylic acid, methacrylic acid, acrylamide, methacrylamide, N-alkoxymethyl acrylamides, N-alkoxymethyl methacrylamides, N-tert. butylacrylamide, itaconic acid, vinylacetate, N-branched alkyl maleamic acids wherein the alkyl group has 10 to 24 carbon atoms, glycol diacrylates, or mixtures of these; natural or synthetic rubbers such as silicone rubber, styrene-butadiene, butyl-ether, neoprene, nitrite, polyisobutylene, polybutadiene, and polyisoprene, polyurethane elastomers; vinyl polymers, such as polyvinylalcohol, polyvinyl ethers, polyvinyl pyrrolidone, and polyvinylacetate; ureaformaldehyde resins; phenolformaldehyde resins; resorcinol formaldehyde resins; cellulose derivatives such as ethyl cellulose, methyl cellulose, nitrocellulose, cellulose acetatebutyrate, and carboxymethyl cellulose; and natural gums such as guar, acacia, pectins, starch, dextrin, albumin, gelatin, casein, etc. The adhesives may be compounded with tackifiers and stabilizers as is well-known in the art.

Various flexible or non-flexible backing members can be used in the adhesive patch of the invention. Suitable backings include cellophane, cellulose acetate, ethylcellulose, plasticized vinylacetate-vinylchloride copolymers, polyethylene terephthalate, nylon, polyethylene, polypropylene, polyvinylidenechloride, impregnated paper, cloth, and aluminum foil. Preferably, a flexible occlusive backing is employed to conform to the shape of the oral mucosa to which the adhesive patch is applied and to enhance absorption of the oxytocic drug by the mucosa. To avoid leaching of the oxytocic drug by saliva in use, it is important that the backing member be substantially impervious to and insoluble in saliva.

To prepare the therapeutic adhesive patch, an oxytocic drug is mixed with the pressure-sensitive adhesive and the mixture coated onto the backing member, usually to provide an adhesive layer 0.01 to 7 millimeters thick, although these limits can be exceeded if more or less drug is required. Alternatively, a solution or suspension of the drug can be sprayed on the adhesive face surface of the patch.

To prevent passage of the drug away from the exposed surface of the pressure-sensitive adhesive prior to use, the adhesive surface of the patch generally is covered with a protective release film or foil, such as waxed paper. Alternatively, the exposed rear surface of the backing member can be coated with a low-adhesion backsize and the patch rolled about itself.

To use the adhesive patch of the invention, it is applied to the oral mucosa, usually to the palate or buccal mucosa, to release a therapeutically effective amount of the oxytocic drug to the mucosa. Oxytocic drug within the adhesive patch of the invention migrates through the pressure-sensitive adhesive layer to the surface thereof. Ordinarily, one would expect drug migration to cease when sufficient drug has reached the outer surface of the adhesive layer to create an equilibrium. However, when the adhesive layer is in contact with the patient's oral mucosa, drug molecules

are continuously removed from the outer surface of the adhesive layer and absorbed by the oral mucosa. Absorbed drug molecules pass through the oral mucosa and enter circulation through the capillary network.

By use of this invention, one ensures that an accurately measured quantity of the oxytocic drug is applied to the oral mucosa. Because the backing member and pressure-sensitive adhesive coating prevent mingling of the oxytocic drug with saliva, the problem of transfer of quantities of the drug to the gastrointestinal tract is avoided. Moreover, the adhesive patch is effective to maintain the oxytocic drug in contact with the oral mucosa and to enhance penetration of the drug through the mucosa. This is most important, as the high concentration of drug at the mucosal surface significantly decreases the latent period between administration and stimulation of uterine contractions. This permits use of oral mucosal administration of oxytocic drugs during the second stage of labor. Furthermore, the rate of release of oxytocic drug from the patch of the invention can be accurately measured and controlled. This avoids the problems of overdose previously encountered when oxytocic drugs were administered through the oral mucosa.

FIG. 2 illustrates a modified adhesive patch 20 of the invention including a backing member 21 bearing a pressure-sensitive adhesive coating 22 on one surface thereof. Adhesive coating 22 has distributed therethrough microcapsules 23 of oxytocic drug encapsulated with a material permeable to passage of the drug.

Materials used to encapsulate the drug and form the microcapsules to be distributed throughout the adhesive must be permeable to the drug to permit passage of the drug through the walls of the microcapsules. Normally, the rate of passage of the drug through the walls of the microcapsules is dependent on the solubility of the drug therein or the porosity of the walls, as well as on the microcapsule wall thickness. This means that selection of appropriate encapsulating materials will be dependent on the particular drug used in the adhesive patch. By varying the encapsulating material and the wall thickness, the dosage rate per area of patch can be controlled and movement of drug through the adhesive regulated.

Suitable materials for use in encapsulating the drug include hydrophobic polymers such as polyvinylchloride either unplasticized or plasticized with long-chain fatty amides or other plasticizer, plasticized nylon, unplasticized soft nylon, silicone rubber, styrene-butadiene rubbers, polyisoprene, polybutadiene, polyisobutylene, and polyethylene terephthalate; and hydrophilic polymers such as esters of acrylic and methacrylic acid (as described in U.S. Pat. Nos. 2,976,576 and 3,220,960 and Belgian Pat. No. 701,813), modified collagen, cross-linked polyvinylalcohol, cross-linked partially hydrolyzed polyvinylacetate, cellulose such as methylcellulose, ethylcellulose, and hydroxyethylcellulose, and gums such as acacia, carboxymethylcellulose, and carageenan alone or combined with gelatin.

To provide the microcapsules, the encapsulating material can be uniformly impregnated with the drug to form microcapsules which are a matrix having the drug distributed therethrough. Alternatively, particles of

drug can be encapsulated with thin coatings of the encapsulating material to form microcapsules having an interior chamber containing the drug. If desired, particles of a matrix, such as starch, gum acacia, gum tragacanth, and polyvinylchloride, can be impregnated with the drug and encapsulated with other materials such as the encapsulating materials previously described which function as a membrane to meter the flow of drug to the adhesives; use of a matrix and a different membrane coating can slow the passage of the drug from the microcapsules which is desirable with drugs that are released too rapidly from available encapsulating materials.

Any of the encapsulation or impregnation techniques known in the art can be used to prepare the microcapsules to be incorporated into the pressure-sensitive adhesive in accord with the embodiment of FIG. 2. Thus, the drug can be added to the encapsulating material in liquid form and uniformly distributed therethrough by mixing and subsequently converting to a solid by curing or cooling; or solid encapsulating material can be impregnated with the drug by immersion in a bath of the drug or drug solution to cause the drug to diffuse into the material. Subsequently, the solid material can be reduced to fine microcapsules by grinding, each of the microcapsules comprising drug coated with and distributed throughout the encapsulating material. Alternatively, fine particles of the drug can be encapsulated with the coating. One suitable technique comprises suspending dry particles of the drug in an air stream and contacting that stream with a stream containing the encapsulating material to coat the drug particles. Usually, the microcapsules have an average particle size of from 1 to 1,000 microns, although this is not critical to the invention. The microcapsules, however made, are then mixed with any of the previously described pressure-sensitive adhesives and the mixture coated onto the backing member to provide the therapeutic adhesive patch.

Further embodiments of the therapeutic adhesive patch of the invention are illustrated in FIGS. 3 and 4. As illustrated in FIG. 3, the adhesive patch 30 of the invention is comprised of a backing member 31 having a reservoir 32 on one surface thereof. One wall of reservoir 32 remote from backing member 31 bears a pressure-sensitive adhesive coating 33. Reservoir 32 contains oxytocic drug 34 dispersed therethrough. In the embodiment of FIG. 3, reservoir 32 is a polymeric matrix having the drug distributed therethrough. It is permeable to passage of drug 34 to release drug to adhesive layer 33.

FIG. 4 illustrates a further form of the therapeutic adhesive patch 40 including a backing member 41 and a reservoir 42 in the form of a hollow container having an interior chamber 43 containing particles of oxytocic drug 44. Wall 45 of reservoir 42, remote from backing member 41, is permeable to passage of drug 44 to meter the flow of drug to pressure-sensitive adhesive layer 46 on the outer surface thereof.

Suitable materials for forming the reservoir, whether of the matrix or hollow container type, are those materials permeable to passage of the drug previously described as suitable encapsulating materials. The reservoir can be formed by molding into the form of a hollow container with the drug contained therein. Al-

ternatively, the reservoir can be in the form of an envelope formed from sheets of polymeric material permeable to passage of the drug and enclosing the drug. While the walls of the reservoir can be of any convenient thickness, usually they have a thickness of from 0.01 to 7 millimeters. When the reservoir comprises a matrix with the drug distributed therethrough, it can be prepared by adding the drug to the matrix material in liquid form or solvent solution form and subsequently converting the matrix to a solid by curing, cooling or evaporation of solvent; or by immersing the solid matrix in the drug or a solution of the drug to effect diffusion of the drug into the matrix.

Thus, the reservoir of the therapeutic adhesive patch is a hollow drug container or a solid matrix. Drug is metered from the reservoir to the adhesive layer, at a rate controlled by the composition, porosity, and thickness of the reservoir or of the reservoir wall. From the adhesive layer, drug is directly transmitted to the oral mucosa to which the therapeutic adhesive patch is applied.

In one form of the invention, the adhesive is applied to the drug-containing reservoir at the point of use. This avoids premature saturation of the adhesive with drug and provides further control over the rate of oxytocic drug administration. To achieve this, the reservoir, mounted on the backing, is supplied with a strippable protective film, and the adhesive is supplied in film form with a strippable protective film on each surface. For use, the protective film is removed from the reservoir and one surface of the adhesive, the adhesive applied to the reservoir, and the remaining protective film removed from the adhesive face surface of the now assembled patch.

While FIGS. 3 and 4 illustrate the reservoirs 32 and 42 as bearing a uniform coating of the pressure-sensitive adhesive, this is unnecessary. Adhesive coating 33 can be disposed about the perimeter of the face surface of reservoirs 32 and 42 to provide a liquid-tight seal and to maintain the face surface of reservoirs 32 and 42 in contact with the oral mucosa. In such case, molecules of oxytocic drug passing through the reservoir are conveyed directly from the surface of the reservoir to the oral mucosa.

The following examples will serve to illustrate the invention without in any way being limiting thereon.

#### EXAMPLE 1

Pressure-sensitive adhesive of the following composition:

Polyisobutylene (Approximate average molecular weight—10,000)	20 gms.
Polyisobutylene (Approximate average molecular weight—about 80,000)	5 gms.
Carboxymethyl cellulose	2 gms.
Pectin	3 gms.
Gelatin	15 gms.
Polyvinylmethyl ether (100% solids; reduced viscosity of 0.4 to 0.5)	2 gms.

is prepared by callendering the polyisobutylenes at 90° C and mixing uniformly. Remaining components of the adhesive are then added to the molten rubbery mass to obtain a homogeneous composition. Oxytocin is mixed with the adhesive to obtain about 40 international units of drug per square centimeter area of adhesive having a thickness of 0.5 mm. The adhesive-drug mixture is ap-

plied to a sheet of polyethylene (thickness of 0.5 mil) to a thickness of 0.5 mm. and patches 2 cm. by 2 cm. are cut from the coated sheet.

Each such patch contains 160 international units of oxytocin. When applied to the oral mucosa, the pressure-sensitive adhesive forms a liquid-tight bond which permits rapid migration of oxytocin from the adhesive to the surface of the mucosa in contact therewith. This build-up of drug at the surface provides a gradient driving force for absorption of oxytocin by the mucosa. The polyethylene backing member is impermeable to oxytocin and liquids in the mouth so no drug escapes from the patch to be carried to the gastrointestinal tract. By applying the patch to the oral mucosa, uterine contractions are stimulated.

#### EXAMPLE 2

The procedure of Example 1 is repeated except that desamino-oxytocin is substituted for oxytocin to provide an adhesive patch containing 80 international units of desamino-oxytocin.

#### EXAMPLE 3

Pressure-sensitive adhesive of the following composition:

Polyvinylethyl ether (98% solids; reduced viscosity 0.2 to 0.4)	5 gms.
Polyvinylethyl ether (98% solids; reduced viscosity 3.5 to 4.5)	10 gms.
Polyvinylmethyl ether (97% solids; reduced viscosity of 0.3 to 0.5)	10 gms.
Anionic heteropolysaccharide (Biopolymer XB—23 made by carbohydrate fermentation by bacterium <i>Xanthomonas Campestris</i> )	15 gms.
Pectin	5 gms.
Gum acacia	2 gms.

is prepared by callendering the ethers and then adding the remaining components with thorough mixing. To this adhesive, oxytocin is added to provide 30 international units per square centimeter when the adhesive is coated onto a polyethylene backing sheet (thickness of 0.5 mil) to a thickness of 0.5 mm. Patches having a face surface area of 2.25 square centimeters are stamped from the coated sheet and used to stimulate uterine contractions by application to the oral mucosa.

#### EXAMPLE 4

In the same manner as Example 3, adhesive patches are prepared containing 15 international units of desamino-oxytocin per square centimeter of face surface.

Thus, this invention provides a reliable and easy to use drug-delivery system for administering oxytocic drugs through the oral mucosa. Since the system is maintained in liquid-tight communication with the oral mucosa, a predetermined dose of drug can be administered. Uncertainties in rate of administration, inherent in prior dosage units, are overcome and the substantial toxic effects of overdosing are avoided. Because the drug is maintained in contact with the mucosa, the latent period for activity of the drug after administration is substantially shortened permitting more widespread usage of this convenient route of administration.

Although the product of this invention has been referred to as an adhesive patch, those skilled in the art will appreciate that the term "adhesive patch" as used herein includes any product having a pressure-sensitive adhesive face surface. Such products can be provided in various sizes and configurations, including tapes, bandages, sheets, plasters, and the like.

While there have been shown and described and pointed out the fundamental novel features of the invention as applied to the preferred embodiment, it will be understood that various omissions and substitutions and changes in the form and details of the adhesive patch illustrated may be made by those skilled in the art without departing from the spirit of the invention. It is the intention, therefore, to be limited only as indicated by the scope of the following claims.

What is claimed is:

1. A therapeutic adhesive patch for the continuous administration to the oral mucosa of controlled quantities of an oxytocic drug which is absorbable through the mucosa to stimulate uterine contractions, said patch comprising a laminate of: (1) a backing member defining one face surface of the patch; (2) a pressure-sensitive adhesive adapted for contact with the mucosa, the external surface of said pressure-sensitive adhesive defining the other face surface of the patch; (3) at least one reservoir comprised of an oxytocic drug confined within a wall member and disposed between the face surfaces defined by (1) and (2); said wall member being formed from drug release rate controlling material to continuously meter the flow of a therapeutically effective amount of drug from the said reservoir to the mucosa at a controlled and predetermined rate over a period of time.

2. The patch as defined by claim 1 wherein the backing member bears the pressure sensitive adhesive on one surface thereof and the reservoir comprises a plurality of discrete microcapsules distributed throughout the pressure sensitive adhesive.

3. The patch as defined by claim 2 wherein each of said microcapsule is comprised of an oxytocic drug formulation microencapsulated with the drug release rate controlling wall material.

4. The patch as defined by claim 2 wherein each of said microcapsule is comprised of a matrix of the drug release rate controlling wall material, said matrix having the oxytocic drug formulation distributed therethrough.

5. The patch as defined by claim 2 wherein the drug is selected from the group consisting of oxytocin, desamino-oxytocin, and pharmaceutically acceptable salts thereof.

6. The therapeutic patch as defined by claim 1 wherein the backing member bears a discrete, middle reservoir layer, and the pressure-sensitive adhesive is carried by the surface of the reservoir layer remote from the backing member.

7. The patch as defined by claim 6, wherein one outer surface of the wall member comprising the reservoir layer also defines the backing member.

8. The patch as defined by claim 6 wherein the reservoir layer is comprised of a walled container having an interior chamber containing the oxytocic drug.

9. The patch as defined by claim 6 wherein the reservoir layer is comprised of a matrix of the drug release rate controlling material, said matrix having the oxytocic drug distributed therethrough.

10. The patch as defined by claim 6 wherein the drug is selected from the group consisting of oxytocin, desamino-oxytocin, and pharmaceutically acceptable salts thereof.

11. The patch as defined by claim 6 wherein the pressure-sensitive adhesive coating extends only about the perimeter of the surface of the reservoir.

12. The patch as defined by claim 1 wherein the oxytocic drug is a pharmaceutically acceptable derivative thereof absorbable through the oral mucosa.

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