Continuum M_n^{2n+1} can also be obtained as the inverse limit $\varprojlim(X_i, p_i^{i+1})$ in the following way. Let $\{G_1, G_2, \dots\}$ be an open base of S^n consisting of open n-cells such that $diam_i \to 0$. Put $X_1 = S^n$ and $X_{i+1} = (X_i \times \{0,1\})/\sim$, where relation $\sim$ identifies points $(x,0),(x,1)$ iff $p_1^i(x) \notin G_i$. The bonding maps p_i^{i+1} are natural retractions [Pasynkov 1965], [Bestvina 1988, pp. 98–99].

1. M_n^m is the universal space in the class of all compacta of dimension $\leq n$ which embed in $\mathbb{R}^m$ [Štanko 1971] ([Menger 1926] for M_{m-1}^m). M_{m-1}^m is universal in the class of all $(m-1)$-dimensional subsets of $\mathbb{R}^m$ ([Engelking 1978, Problem 1.11.D]), and M_n^{2n+1} in the class of all n-dimensional separable metric spaces [Bothe 1963].

2. A continuum X is homeomorphic to M_m^{m+1} if and only if X can be embedded in the $(m+1)$-sphere S^{m+1} in such a way that $S^{m+1} \setminus X$ has infinitely many components $C_1, C_2, \dots$ such that $diam_i \to 0$, $\operatorname{bd} C_i \cap \operatorname{bd} C_j = \emptyset$ for $i \neq j$, $\operatorname{bd} C_i$ is an m-cell for each i and $\bigcup_{i=1}^{\infty} \operatorname{bd} C_i$ is dense in X (see [Cannon 1973] and [Chigogidze et al. 1995, Theorem 6.1.2, p. 74]).

3. A continuum X is homeomorphic to M_n^{2n+1} if and only if X is n-dimensional, C^{n-1} and LC^{n-1}-space with the disjoint n-disks property (DD^nP property) [Bestvina 1988, Corollary 5.2.3, p.98].

   Equivalently, X is homeomorphic to M_n^{2n+1} if and only if X is n-dimensional, C^{n-1} and LC^{n-1}-space such that any continuous map from a compact space of dimension $\leq n$ into M_n^{2n+1} is a uniform limit of embeddings (Z-embeddings) [Bestvina 1988, Theorem 2.3.8, p. 36].

4. (a) If $Z \subset M_n^{2n+1}$ is a Z-setZ-set, then, for every open neighborhood $U \subset M_n^{2n+1}$ of Z and every $\epsilon > 0$, there is $\delta > 0$ such that if $Z' \subset M_n^{2n+1}$ is a Z-set and $h : Z \to Z'$ is a δ-homeomorphism, then h extends to an ϵ-homeomorphism $h^* : M_n^{2n+1} \to M_n^{2n+1}$ such that $h^*|M_n^{2n+1} \setminus U = $ identity [Bestvina 1988, Theorem 3.1.1, p. 65].

   (b) For every $\epsilon > 0$, there exists $\delta > 0$ such that if Z, Z' are Z-setsZ-set in M_n^{2n+1} and $h : Z \to Z'$ is a δ-homeomorphism, then there is an ϵ-homeomorphism $h^* : M_n^{2n+1} \to M_n^{2n+1}$ extending h [Bestvina 1988, Theorem 3.1.3, p. 71].

   (c) Every homeomorphism between Z-sets in M_n^{2n+1} extends to an auto-homeomorphism of M_n^{2n+1} [Bestvina 1988, Corollary 3.1.5, p. 72].

   It follows that M_n^{2n+1} is strongly locally homogeneous and countably dense homogeneous.

5. If $m < 2n+1$, then M_n^m is not homogeneous [Lewis 1987] (for $m \geq 2n+1$ the homogeneity of M_n^m follows from the property above).

6. $M_n^{2n+1} \times X$ is not 2-homogeneous for an arbitrary continuum X [Kuperberg et al. 1995].